DISSERTATION ON

'A STUDY TO ASSESS THE EFFECTIVENESS OF CONSUMPTION OF WARM WATER FOLLOWED BY POSTURAL DRAINAGE AMONG AGE GROUP OF 6-9 YEARS WITH RESPIRATORY TRACT INFECTION ADMITTED AT INSTITUTEOF CHILD HEALTH AND HOSPITAL FOR CHILDREN CHENNAI'.

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In partial fulfillment of requirements for the degree of

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APRIL 2016

CERTIFICATE

This is to certify that this dissertation titled "**A study to assess the effectiveness of consumption of warm water followed by postural drainage among age group of 6-9 years with respiratory tract infection admitted at InstituteOf Child Health And Hospital For Children, Chennai"** is a bonafide work done by **Ms. G. RUPAVATHY**, M.Sc Nursing II year student, College of Nursing, Madras Medical College, Chennai – 600003 submitted to The TAMILNADU DR.M.G.R. MEDICAL UNVERSITY, CHENNAI in Partial fulfillment of the requirements for the award of Degree of Master of Science in Nursing, Branch-II, CHILD HEALTH NURSING, under our guidance and supervision during the academic period from 2014 – 2016.

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ABSTRACT

TITLE : "A study to assess the effectiveness of consumption of warm water followed by postural drainage among age group of 6-9 years with respiratory tract infection admitted at instituteof child health and hospital for children, Chennai."

Acute respiratory infections are a major cause of mortality and morbidity in young children worldwide. They account for nearly 3.9 million deaths every year globally.Respiratory tract infections causes 4.5 million deaths among school age children every year, in developing countries. Chest physiotherapy plays an important role in lung parenchymal disease and pleural diseases.

***Need for the study*:** The airway surface for its efficiency depends on hydration and Chest physiotherapy. Hence I was keen to evaluate the effectiveness of consumption of warm water followed by postural drainage and percussion on respiratory status among children with selected respiratory infection like bronchitis, bronchiolitis, Bronchiectasis and pneumonia.

Objectives of the study :

1. To assess the respiratory status of the children before postural drainage in experimental and control group.
2. To determine the effectiveness of consumption of warm water followed by postural drainage in experimental group
3. To assess the respiratory status of children after the Postural drainage in control group.
4. To compare the respiratory status of children between experimental and control group.
5. To associate the post test level of respiratory status with selected demographic variables in experimental and control group.

Methodology:

Research approach:Quantitative research approach

Research Design:Quasi experimental study design.

Sampling technique:Convenient sampling technique.

Data analysis:

Data were analyzed with both descriptive and inferential statistical method.

Discussion:

In experimental group the respiratory status of children are reduced their clinical parameters distress score from 11.33 to 4.17. They are able to reduce 7.16 score from baseline score. In control group 11.33 to 7.90 they are able to reduce 3.27 score from baseline score. Regarding bio-physiological parameter, statistically very highly significant in experimental group ($P<0.001$) and significant in control ($P< 0.01$) groups.

Recommendation:

The same study can be done in multicentred settings.

Conclusion:

The study revealed that postural drainage and percussion along with consumption warm water was very effective than postural drainage alone, Very highly significant($P<0.001$).

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LIST OF ABBREVIATIONS

ABBREVIATIONS	EXPANSION
WHO	WORLD HEALTH ORGANISATION
ICH	INSTITUTE OF CHILD HEALTH AND HOSPITAL FOR CHILDREN
PD & P	POSTURAL DRAINAGE AND PERCUSSION
BPM	BIO-PHYSIOLOGICAL PARAMETERS
SaO_2	OXYGEN SATURATION

CHAPTER- I

INTRODUCTION

"Children are the wealth of tomorrow, take care of them if you wish to have strong India, ever ready to meet various challenges".

-Jawaharlal Nehru.

Respiratory infection represent one of the major health problems in children living in developing countries. Among the total under five deaths in developing countries nearly one fifth are directly attributed to respiratory infection. The children and adult preferentially breathe through their nose unless nasal obstructions interfere. However, most children are obligate and nasal breaths and significant nasal obstruction presenting during the childhood period, such as Bronchitis Bronchiolitis, Bronchiectsis and Pneumonia may be a life threatening situation for the infant unless an alternative to the nasal air way is established. The most common disorder of respiratory tract is related to infections, bacterial, viral and allergic reaction. Both process resulting in increased mucus production and edema. This interferes with the normal functions of upper respiratory tract including provision of a clear passage way of air to enter the lungs and humidifying of the air as it passes.

Acute respiratory tract infections cause 4.5 million deaths among school age children every year, the overwhelming majority occurring in developing countries. Pneumonia unassociated with measles causes 70per-cent of these deaths; post-measles pneumonia, 15per-cent; pertussis, 10per-cent; and bronchiolitis and croup syndromes, 5per-cent. Both bacterial and viral pathogens are responsible for these deaths.

Prevention of spread of infection is very important in children, careful hand washing is carried out when caring for children with respiratory infections. If the child has significantly elevated temperature, controlling the fever is important; more over dehydration is always a hazard when children are febrile or anorexic, especially when vomiting or diarrhea is present. Loss of appetite is

characteristic of children with acute infection. In most cases, children can be permitted to determine their own need for food. Under-five with respiratory infection is irritable and difficult to comfort therefore, the family needs support, encouragement and practical suggestions concerning comfort measures and administration of medication.

The relation between parental education and acute respiratory infection in children has become explored in other parts of world. Child health is an important indicator for describing the mortality condition, progress in health and overall social and economic well-being of the country.

The respiratory system plays a vital role in the inhalation and exhalation of respiratory gases in the human body. It allows for the inhalation of gases such as oxygen in the air which can then be transported by the blood around the body to supply tissues and cells, and the exhalation of waste gases such as carbon dioxide into the air.

A layer of mucus and ciliated cells covers the lower portion of the respiratory tract, both single and sub epithelial cells secrete mucus. Respiratory pathogens that reach the lower respiratory tract if trapped in the mucous layer can then be driven upwards by cilia action (the mucociliary elevator) to the back of the throat. In addition, the sneeze and cough reflexes are important mechanisms for clearing material that accumulates in or irritates the respiratory tract.

The secretions produced in the respiratory tract are cleared by mucociliary transport, and cough. In disease, increased secretion viscosity and volume, dyskinesia of the cilia, and ineffective cough combine to reduce secretion clearance, leading to increased risk of infection. In Obstructive lung disease these conditions are further complicated by early collapse of airways, due to airway compression, which traps both gas and secretions. Techniques have been developed to optimize expiratory flow and promote airway clearance, directed cough, forced expiratory technique, active cycle of

breathing, and autogenic drainage are all more effective than placebo and comparable in therapeutic effects to postural drainage; they require no special equipment or care-provider assistance for routine use. Researchers have suggested that standard chest physical therapy with active cycle of breathing and forced expiratory technique is more effective than chest physical therapy alone. Evidence-based reviews have suggested that, though successful adoption of techniques such as autogenic drainage may require greater control and training, patients with long-term secretion management problems should be taught as many of these techniques as they can master for adoption in their therapeutic routines.

To study the effects of postural drainage as a techniques of physiotherapy in the domiciliary management of children, measurements have been made of sputum production during physiotherapy, total daily sputum production, total time spent on physiotherapy, mean daily peak expiratory flow rates derived from morning `and evening measurements, and an assessment of overall well-being derived from a respiratory assessment scale.

Chronic bronchitis is defined aschronic cough andexpectoration, when other specific causes of cough can be excluded, which persists for at least a 3 month period for at least 2 consecutive years. (American thoracic society, Standards for the Diagnosis and care of patients with chronic Obstructive Pulmonary Diseases) It is one of the components of Chronic Obstructive Pulmonary Diseases. Chronic obstructive pulmonary disease is a slowly progressive disease and most airway obstruction is fixed, although some reversibility may be demonstrated with medicationpostural drainage is a system of breathing exercises developed in 1967 by Jean Chevalier in Belgium, to sequentially attain the highest possible expiratory flows to move secretions from peripheral to central airways, without forced expiration and associated airway closure.Postural drainage improves airflow in the small airways, clearing secretions that are not easily accessible , and is often preferred by patients.

The use of specific positions are helped in the force of gravity can assist in the removal of bronchial secretion from the affected lungs segments to central airway by means of coughing or suctioning. The patient positioned so, the diseased are in near vertical position and the gravity is used to assist the drainage of the specific segments. the positions assumed are determined by the location, severity and duration of mucus obstruction. Postural drainage is the positioning of the patient so as to gravity will assist in the movement of the secretions from the smaller bronchial airways to the main bronchus and trachea, from which the secretions can be removed by coughing or suctioning. so this postural position is considered as one of the effective method in children with respiratory tract infection.

Chest physiotherapy, also referred to as chest percussion, is a technique that involves tapping on the chest or back to loosen this secretions in order to make them easier to expel, or cough up. It is often used with postural drainage and can be performed using cupped hands or an airway clearance device. The chest physiotherapy, percussion and hydration work best in respiratory infection condition.

As the incidence of respiratory illness is quite appreciable among school children in India, hence the investigator interested to assess the need for the effectiveness of warm water with postural drainage in school children with respiratory infection.

1.1 NEED FOR THE STUDY

Infections of respiratory tract are more common among children. They are substantial cause of increased morbidity and mortality rates in young children in India. Respiratory Tract Infection (RTI) is a nonspecific term used to describe acute infections involving the Nose, Para nasal Sinuses, Pharynx, Larynx, Trachea, and Bronchi. A large number of diseases could be prevented with little or no medical interventions.

The management of child with upper respiratory tract infection, the appropriate decision making, recognize the mild, moderate and severe respiratory tract infection and initiate correct management for respiratory infection as soon as possible to prevent the progression of the infection. The respiratory infections are not treated in early stage it may leads to certain complication like pericarditis, empyema, pneumothorax, and staphylococcal pneumonia,which increases the risk of child mortality. Thereforeaccurate prevention and management is vital important.

The hypothesis suggest that there is 'too little salt' on airways surface, as the airways of the mammalian lung are quite water permeable, too little volume (water) on airway surface, i.e the airways are 'dehydrated'. the defense mechanism that protects airways surfaces is the mechanical clearance afforded by the mucus clearance system, which heavily depends on the hydration status of airway surface for its efficiency, the dehydration of airway surface leads to adhesion of mucus to airway surfaces. hence it is the proved hypothesis of hydration is very important during the respiratory infection.

Thus the investigator also found that consumption of warm water followed by Postural drainage is an effective nursing intervention to improve the respiratory status. Hence the investigator thought it apt to incorporate both the procedures find the effectiveness on improving respiratory status among children with respiratory disorders.

Statistical data of Respiratory Infection in India (WHO)

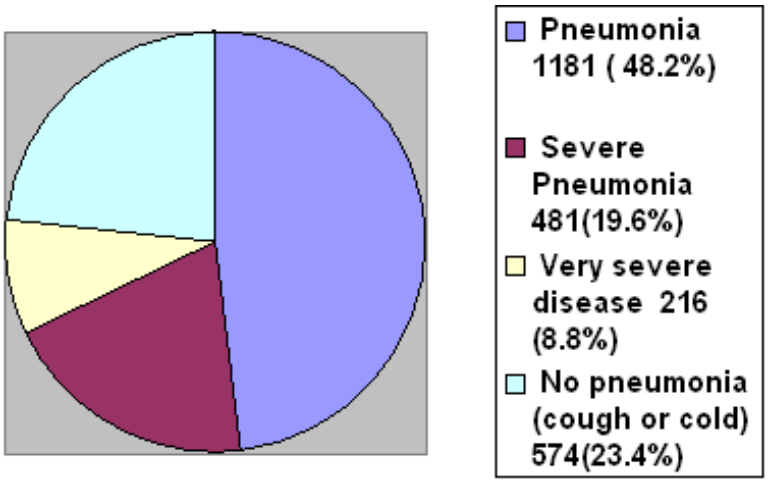

Table -1 : Statistics of children with respiratory infections at Institute of Child Health and Hospital for Children, Chennai - 8 for the year 2010 – 2014.

S.NO	NAME OF THE DISEASES	TOTAL CASES	TOTAL PRIMARY CASES	TOTAL PRIMARY DEATH	TOTALD EATH
1.	BRONCHIOLITIS	3428	3228	5	10
2.	BRONCHITIS	161	115	9	14
3.	BRONCHIECTASIS	200	120	5	6
4.	CYSTIC FIBROSIS	19	17	2	3
5.	UPPER RESPIRATORY INFECION	747	546	0	0

As per above ICH census the bronchiolitis(3428), bronchitis(161), Bronchiectasis(200), upper respiratory infections(747) were considered the major problems.

1.2 Statement of the problem

"A study to assess the effectiveness of consumption of warm water followed by postural drainage among age group of 6-9 years with respiratory tract infection admitted at Institute of Child Health and Hospital for Children, Chennai".

1.3 Objectives of the study

1. To assess the respiratory status of the children before postural drainage in experimental and control group.
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4. To compare the respiratory status of children between experimental and control group.
5. To associate the post test level of respiratory status with selected demographic variables in experimental and control group.

1.4 Operational definition

Assess:

It refers determination of level of respiratory infection in children as observed by the respiratory assessment scale.

Effectiveness:

It is defined in the improvement in the respiratory status score as a result of consumption of warm water and postural drainage

Consumption

Consumption is the act or process of using up something.

Warm water:

The water(100mls) should be hot at a temperature of around(50^{o}c)that means hot enough to feel it while drinking, but affordable, without causing burn.

Postural drainage

Postural drainage is one way to help treat breathing problems due to swelling and too much mucus in the airway of the lungs, with the postural drainage , the position that helps to drain out the lungs.

Respiratory Tract infection

Respiratory tract infection is an infection anywhere in the respiratory tract(i.e. the nose, throat, and lungs). The infection can be caused by bacteria, a virus or even fungi.

1.5Assumptions

1. Respiratory tract infections are the common in childhood.
2. Force of gravity enhances the mobilization of secretions.
3. Hydration has the influence on liquefying the secretions.

1.6 Hypothesis of the study

H1-There will be statistically significant improvement of respiratory status by postural drainage by consumption of warm water in experimental group.

H2-There will be significant association between effective postural drainage followed by consumption of warm water with selected demographic variables.

1.7 Delimitation

1. This study is limited to hospitalized children between 6 and 9 years age group.

1. The study period is limited for four weeks only.
2. The study is limited for children with selected respiratory disease.

CHAPTER –II

REVIEW OF LITERATURE

Literature review is defined as "A critical summary of research on a topic of interest often prepared to put a research problem in context"

(Polit and Hunger 1999)

Through the literature review researcher generates a picture of what is known about a particular situation and the knowledge gap that exists between the problem statement and the subject problems and lays a foundation for the research plan.

Review of literature refers to an extensive and systemic examination of publication relevant to the research project. Review of literature is a key step in research process. Nursing research is considered as a continuing process in which knowledge gained from earlier studies is an integral part of research.

According to ***Polit and Hungler (2007)*** the review of literature is defined as a board comprehensive in depth systemic and critical reviews of scholarly publications, unpublished scholarly print materials, audiovisual materials and personal communications. A researcher analyses the existing knowledge before developing into a new area of study while conducting a study, when interpreting the results of the study, and when making judgments about applications of new knowledge in nursing practice. An extensive review of literature relevant to the research topic was done to gain insight and to collect maximum information for laying the foundation of the Study. In this present studyreview of literature deals with the following headings.

PART I: Review of literature deals with the following aspects ,

The whole review was organized under the following headings,

1. Literature related to effectiveness of Postural drainage
2. Literature related warm Water
3. Review related to change in bio-physiological parameters with postural drainage and percussion.

PART II: Conceptual frame work

2.1 Review of literature:

Literature related to effectiveness of Postural drainage:

Stiller K. R. et al.,(1990)chest physiotherapy for medical patients,Royal Adelaide Hospital(1990) Chest physiotherapy is widely used in the treatment of pulmonary disease. The patients referred for treatment have a range of pulmonary disorders, which include cystic fibrosis (CF), Bronchiectasis, pneumonia, bronchitis, pulmonary tuberculosis, pleural effusion and pneumothorax. The time spent may range from a few minutes to as much as two hours a day. Thus, the economic implications of chest physiotherapy become obvious. This article aims to review the evidence that physiotherapy is beneficial.[J-4].

Dolovich MB,F.A, Montgomery JM et al.,(1999)The randomized trail studied the effects of postural drainage, exercise, and cough on mucus clearance were compared in 8 patients with chronic bronchitis. The return of deposited aerosol in the lung, as a function of time, was qualified using a gamma camera and subsequent computer analysis. Coughing greatly accelerated total lung($p<0.005$)and peripheral mucus clearance($p<0.005$)mucus clearance. Postural drainage with coughing was therapeutic implication and stress the importance of this technique.[J-2]

Moore, A. E. MD (1999)The treatment of postoperative pulmonary atelectasis, the post operative pulmonary atelectasis results from the occlusion of a bronchus by a mucous plug. Factors contributing to the development of such a plug are: pre-existing tracheobronchial infections, recumbence, dehydration, and suppression of cough reflux both a voluntary act following abdominal operation and a result of sedative drugs. The efficacy of the method of postural drainage used at this clinic for relieving atelectasis is well illustrated by the six cases here presented[(J-5)].

Murry,M. P. J. et al.,(2009)A study was conducted in a European respiratory society hospital, A randomized crossover trial of chest physiotherapy in non-cystic fibrosis Bronchiectasis regular chest physiotherapy is advocated in non-cystic fibrosis Bronchiectasis despite little evidence supporting its routine use. This study aimed to establish the efficacy of regular chest physiotherapy in non-cystic fibrosis Bronchiectasis compared with no regular physiotherapy. 20 patients not practicing regular chest physiotherapy were enrolled in a randomized crossover trial of 3 months of daily chest physiotherapy using oscillatory positive expiratory pressure device compared with 3months of no chest physiotherapy. The primary end-point was the Leicester Cough Questioner(LCQ). There was significant improvement in all domains and LCQ score with regular chest (median interquartile range) total score improvement 1.3 (-0.17-3.25)units; p=0.002). 24-hrs sputum volume increased significantly with regular chest physiotherapy(2(0-6)ml; p=0.02).as did exercise capacity (40(15-80)m; p=0.001) and SGRQ total score(7.77(-0.99-1.5)unit improvement; p=0.004). Thus chest physiotherapy in non-cystic fibrosis Bronchiectasis has significant benefits. [(J-3)]

Michael R Bye, MD (2011), the author states that Bronchiectasis is characterized by the dilatation of bronchi with destruction of elastic and muscular components of their walls. Chest physiotherapy and postural drainage are important elements in the treatment of Bronchiectasis and should be taught to the child's parents early in the course of disease. This is especially true when the child produces significant amounts of sputum. Physiotherapy techniques should be frequently reviewed and retaught.

Mortensen, J .et al.,(2013)A study was conducted in Lung disease &Respiratory Center, the randomized trial studied the effects of physiotherapy regimens on whole lungs and regional tracheobronchial clearance in ten patients with cystic fibrosis. The regimens were given on two separate days and consisted of 20 minutes of postural drainage and the forced expiration technique and positive expiratory pressure and forced expiration technique (PEP&FET).The third served as control. The study days were randomized, each day the clearance of lung radioactivity was measured by gamma camera. The number of spontaneous cough was sampled. It is found that both postural drainage and forced expiration technique improved the whole lungs.($p<0.01$) as compared to control group.($p<0.05$). The study conclude that postural drainage and positive expiratory pressure effective in expectoration of sputum.[J-1]

Cpaludo, L Zhang, Etal., (2008), this research article discuss about Chest physiotherapy as an adjunct to the treatment of children hospitalized with acute pneumonia. A randomized controlled trial children aged 29 days to 12 years were hospitalized with pneumonia. Out of them 51 were randomly allocated to the intervention group (Chest physiotherapy plus standard treatment for pneumonia) and 47 to the control group (standard treatment for pneumonia alone). The primary outcome was time to clinical resolution. The secondary outcomes were the length of stay in hospital and duration of respiratory symptoms and signs. Chest physiotherapy as an adjunct to standard treatment that does not hasten clinical resolution of child.

2. Literature related warm Water

NewswireP.R.,(July 2008)New book reveals warm water benefits for heart, lungs and mind: 'hot water & healthy living' reviews scientific findings about warm-water , Published by the National Swimming Pool Foundation (NSPF), "Hot Water & Healthy Living" provides a thorough review of how the pressure and warmth of warm-water immersion causes the heart to pump more blood, the chest to work harder to breathe, and the mind and body to relax[(A-7).]

ShomaliaIssam-contributor (2014)Soothes sore throatsWarm water helps to relieve a sore throat by easing throat pain and helping with the expulsion of thick phlegm by thinning it[(A-3)].

Dr.Faris Al Hajri, (2015)*Diet Health Club* Miracles from Drinking Hot Water Article,the miraculous effect of hot water ended the battle of human and diseases. It primarily removes toxins, cures and prevents illnesses and gives sustainable energy. Thus the human and his dangerous enemy, 'Diseases' that come to the end by discovering "THE MIRACLE & WONDERS OF TREATMENT OF HOT WATER".[(A-6)]

Health benefit article (Cough)(2015)The warm water for cough is a traditional form of cough suppressant. In some clinical studies, individuals who were administered a mixture of warm water found soothing relief from cough. In fact, patients found as much relief from night time cough and sleeplessness after taking honey and warm water as compared to patients on a cough expectorant. Natural remedies such as warmwater for cough have fewer side effects as compared to antibiotics. Therefore, they may be administered to children (over the age of two) and elderly. Additionally, the traditional medicine is cheaper and easily available than most over the counter medication. The warm water also provide excellent benefits to soothe a sore throat and other respiratory infections. Another use of warm water during cold and flu season involves using a mixture of salt and warm water to gargle. Individuals may find instant relief from an itchy,sore throat[(A-1)].

13 Amazing benefits of hot water

Heals Nasal & Throat congestion March 25, (2015)Drinking water is an excellent natural remedy for cold, cough and sore throat. It resolves thick cough or phlegm and eliminates that easily from the respiratory tract so that it can get relief from respiratory tract so that can get relief from sore throat. Hot water also helps in clearing the nasal congestion.[(A-2)].

Bhavyajyoti Chilukoti(2015) (11 surprising health benefits of warm water)Can Relieve The Symptoms Of Cough And Cold, An effective natural way to get rid of a cough, cold and sore throat is by drinking water. It acts by clearing phlegm and providing instant relief from respiratory ailments, especially productive cough. The nasal congestion can be combat by drinking warm water or through steam inhalation [(A-4).]

3. Review related to change in bio-physiological parameters with postural drainage and percussion:

Pryor J A, Webber BA, (1990)., this article explains the effect of chest physiotherapy on oxygen saturation in patients with cystic fibrosis. When these features were included in an active cycle of breathing techniques during postural drainage in 20 patients with cystic fibrosis there was no fall in arterial oxygen saturation during the procedure (mean values 87.1%, 87.9%, and 86.7%) before, during, and after treatment.

Hongrattana G. et al.,(2000) Acute hemodynamic responses to 30^0 head down postural drainage in stable, ventilator trauma patients(2000)

A randomized crossover trail (2000) Compared to baseline there were statistically significant ($p<0.05$) increase in systemic blood pressure (6.3mm Hg; CI 2.5, 12.7) and CVP (7.3 CM H_2O; .7, 10.0) during 10min. head tilt although these were not clinical concern. Heart rate and oxygen saturation were unchanged. No episodes of arrhythmias or hypoxemia were observed. All

values returned close to baseline during horizontal recovery. There were no significant changes in bio-physiological parameters. Thus the 30^0 head tilt treatment has minimal risk for trauma patients who have no underlying cardiovascular disease[(A-8)].

Wong.W. P. et al.,(2003) Y.R. BurnsJournal of Applied Physiology Published , Chest clapping, vibration, and shaking were studied in 10 physiotherapists who applied these techniques on an anesthetized animal model. Hemodynamic variables (such as heart rate, blood pressure, pulmonary artery pressure, and right arterial pressure) were measured during the application of these techniques to verify claims of adverse events. In addition, expired tidal volume and peak expiratory flow rate were measured to ascertain effects of these techniques. Physiotherapists in this study applied chest clapping at a rate of 6.2 ± 0.9 Hz, vibration at 10.5 ± 2.3 Hz, and shaking at 6.2 ± 2.3 Hz. With the use of these rates, esophageal pressure swings of 8.8 ± 5.0, 0.7 ± 0.3, and 1.4 ± 0.7 mmHg resulted from clapping, vibration, and shaking respectively. Variability in rates and "forces" generated by these techniques was <20% in average coefficients of variation. In addition, clinical experience accounted for 76% of the variance in vibration rate ($P = 0.001$). Application of these techniques by physiotherapists was found to have no significant effects on hemodynamic and most ventilatory variables in this study. From this study, we conclude that chest clapping, vibration, and shaking *1*) can be consistently performed by physiotherapists; *2*) are significantly related to physiotherapists' characteristics, particularly clinical experience; and *3*) caused no significant hemodynamic effects. Chest clapping, vibration, and shaking had no significant effects on any of the hemodynamic variables. Apart from artifacts from changes in intrathoracic pressure during clapping, no arrhythmias were seen during any of the techniques[(A- 9)].

Joseph V.Doboson, M.D., et al, (2009),this article cities the use of albuteral in hospitalized infants with bronchiolitis. This prospective,

randomized clinical trial was performed. The participants for study were a total of 52 patients less than 24 months of age with a diagnosis of moderately severe, acute vital bronchiolitis were enrolled and assigned to receive nebulizedal buteral. $SaO_{2,}$ accessory muscle use, and wheezing were recorded and the actual length of hospital stay was also measured. The results show that both groups showed significant improvement in oxygen saturation over time.

Rodrigo A S Gonçalves,et al.,(2014)Evaluation of physiological parameters before and after respiratory physiotherapy in newborns with acute viral bronchiolitis, A cross sectional observational study in 30 newborns with acute viral bronchiolitis and indicated for physiotherapy care in a hospitalized Urgency and Emergency Unit. It was collected the clinical data of newborn through evaluation form, and we measured heart rate (HR), oxygen saturation (SpO2) and respiratory rate (RR). We measured the variables before physiotherapy treatment, 3, 6 and 9 minutes after the physiotherapy treatment.There has been no change in HR, however, we observed a decrease in RR at 6 and 9 min compared to 3 min and increase in SpO2 at 3, 6 and 9 min compared to before physiotherapy(A-10).

Joseph V. Doboson (2014)This article studied the use of albuteral in hospitalized infants with bronchiolitis. This prospective, randomized clinical trial was performed. The participants for study were a total of 52 patients less than 24 months of age with a diagnosis of moderately severe, acute viral bronchiolitis. SaO_2 accessory muscle use, and wheezing were recorded and the actual period of hospital stay was also measured. Both groups showed significant improvement in oxygen saturation over time.

2.2CONCEPTUAL FRAMEWORK

The study is based on modified J.W Kenny's open system model (1999).

The Kenny's open system model for conceptual framework. This theory was introduced by Jennet W. Kenny. She was born in the year 1946 at Scotland. The open system model was formulated in the year 1999.The open system enumerates various aspects of system and interaction. She formulated various theories based on management.

The Kenny's open system model in order to assess the effectiveness of consumption of warm water followed by Postural drainage with Respiratory infection under the age group of 6 9 years admitted in ICH, Chennai – 8. This involves interaction between the researcher and the caregiver of children with Respiratory tract infection.

An open system is a system which continuously interacts with its environment. The interaction can take the form of information, energy or material transfers into or out of the system boundary, depending on the discipline which defines the concept. An open system should be contrasted with the concept of an isolated system which exchanges neither energy and matter nor information with its environment.

Open system theory is useful in breaking the whole process into sequential tasks to ensure goal realization. The three major aspects of the systems are:

Input

Throughput

Output

Input is any type of information, energy and material that enters the systems from environment through its boundaries. In this study it refers to pre

assessment of knowledge regarding obtaining demographic variables from the caregivers of children with Respiratory infection.

Throughput is that any information, energy or material that is given to the children with Respiratory infection, regarding the postural drainage and its effectiveness followed by consumption of warm water.

Output is the information that leave the system, enters the environment through the system. In this study it refers to the changes or improvement in Clinical Parameters and Bio-physiological parameters before and after the intervention. In this study, output is measured with Modified Respiratory Assessment Scale.The feedback for the system depends on the output which is either may be reinforcement or enhancement.

Identifying the need for help

It involves viewing the patient as an individual with unique experiences. Determining a patient's need for help is based on the existence of a need whether the patient realizes the need and what prevents the patient from meeting need. In this study, it refers to assessment Respiratory status of children among the age group of 6-9 years admitted in pulmonology ward and in the selected Medical wards.

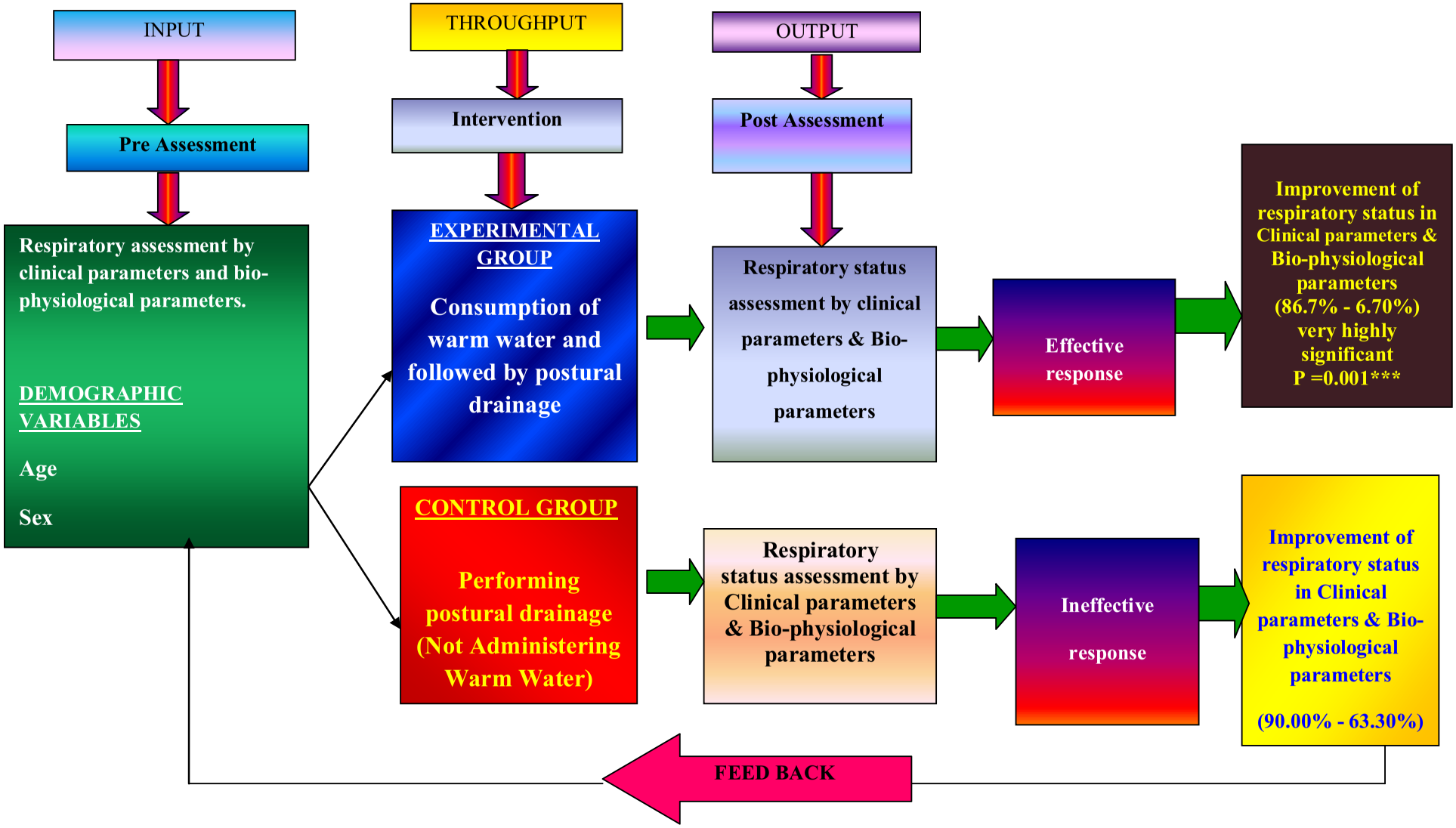
Ministering the need for help

It means the provision of needed for help. This requires an identified need and a patient who wants to help. In this study refers to ministering of Postural Drainage followed by consumption of warm water on reducing respiratory problems like Bronchitis, Bronchiectasis and Pneumonia. This procedure and health tips given by the Investigator during the procedure helps the parents in caring of children, parental counseling, guidance and training of children for this postural drainage procedure. This was rendered through performing the procedure to the children in the prescribed age group, demonstrating the mother or the care takers through charts and pamphlets. This

warm water consumption followed by Postural drainage helps in reducing the respiratory complication and improving the respiratory status to a normal extent.

Validating that a need for help was met

It means collection of evidence that shows the patient's need have been met and his functional ability has been restored as a direct result of the nurse's action. In this study it refers to the post assessment of respiratory status has been improved after providing the warm water followed by Postural drainage. The Respiratory status was improved by providing warm water and performing various positions of postural drainage.


INPUT
Pre Assessment
Respiratory assessment by clinical parameters and bio-physiological parameters.
DEMOGRAPHIC VARIABLES
Age
Sex
THROUGHPUT
Intervention
EXPERIMENTAL GROUP
Consumption of warm water and followed by postural drainage
CONTROL GROUP
Performing postural drainage (Not Administering Warm Water)
OUTPUT
Post Assessment
Respiratory status assessment by clinical parameters & Bio-physiological parameters
Respiratory status assessment by Clinical parameters & Bio-physiological parameters
Effective response
Ineffective response
Improvement of respiratory status in Clinical parameters & Bio-physiological parameters (86.7% - 6.70%) very highly significant P =0.001***
Improvement of respiratory status in Clinical parameters & Bio-physiological parameters (90.00% - 63.30%)
FEED BACK

CHAPTER -III

RESEARCH METHODOLOGY

This chapter deals with the description of methodology and different steps. It includes description of research approach, research design, setting, sample and sampling techniques, development and description of tools, respiratory status assignment, pilot study, data collection and plan for data analysis.

3.1 Research approach

A research approach was selected and done by using quantitative approach and research design was Quasi Experimental Study Design which shows observable changes that takes place in order to establish a cause and effect relationship. The aim of this quasi experimental research is to assess the effectiveness of warm water consumption followed by postural drainage among children in the age group of 6-9 years with selected respiratory disease.

3.2 Duration of the study

Duration of the study was 4 weeks.(From 16.7.2014 to 15.08.2015)

3.3 Research setting:

The study was conducted in a Pulmonology ward and in a Pediatric medical ward at "Institute of Child Health and Hospital for Children Chennai".

3.4 Research design :

Table- 2

Experimental group	O1	X1	O2
Control group	O3	X2	O4

SCHEMATIC OUTLINE OF RESEARCH DESIGN

The symbols used were described as

O1 – Before intervention experimental group

X1 – Consumption of warm water followed by postural drainage

O2 – After Consumption of warm water followed by postural drainage

O3 – Before the intervention to control group

X2 – Performing Postural Drainage without consumption of warm water.

O4 – After the Postural Drainage intervention.

3.5Study Population:

The population comprised of School age children (6-9 years) who are admitted in the Pulmonology Ward and in the Medical Wards.

3.6: Sample size:

Sample size consists of 60 Children with selective respiratory infection in Pulmonology ward and Pediatric Medical wards.

Sample size was N=60

Experimental group N=30

Control group N=30

3.7: Criteria For Sample Selection:

3.7.1 Inclusion Criteria:

1. Children aged 6-9 years both boys and girls admitted in Pulmonology ward and in Pediatric Medical Wards.
2. Children who are admitted with respiratory diseases like Bronchitis, Bronchiolitis, Bronchopneumonia, Pneumonia.
3. Children who are hospitalized for 3days.
4. Parents of children who were willing their children to participate in the study.

3.7.2 Exclusion criteria:

1. Children who were critically ill and with ventilator support.
2. Children with respiratory disease associated with other disease condition such as cardiac condition.
3. Mothers who are not willing to participate in the study

3.8: Sampling technique:

The convenient sampling technique was used every day 2-5 children were taken for study. First 30 children were assigned for consumption of warm water followed by postural drainage (experimental group) and next 30children were given postural drainage alone(control group) who fulfilled the inclusion criteria.

3.9Research Variables:

Independent variable

Consumption of warm water.

Dependent variables

1. Clinical Parameters (Rating Scale)

2. Bio physiological Measurements

3.10 Development and description of the tool

A structured Demographic, clinical parameters and bio-physiological parameters tool was developed by the investigator, based on the objectives of the study and the tool was developed after an extensive review of literature, internet sources and opinion of the experts in the field, journals and books.

3.10.1.Development of tool :

The tool for data collection was formulated by the investigator by consulting the experts in Nursing, Pulmonologymedicine departmentand with statistical experts. The tool has two section with demographic variables and clinical variables.

3.10.2Description of tool:

Section– A: Includes Demographic Variables

Section – B: Respiratory Status Assessment

Section– C: Content validity:

Description of tool:

Section- A :Demographic variables

Demographic data consisting of age, sex, immunization status, weight, previous episode of infection, frequency of hospitalization for respiratory illness, duration of hospital stay during illness, exposure to passive smoking, family income per month.

Section – B:Respiratory Status Assessment

1. Clinical Parameters (Rating Scale)

2. Bio physiological Measurements

Respiratory Status Assessment

1) Clinical parameters which includes chest movements, work of breathing, chest retraction, Nasal flaring, air entry, breath sounds, Childs activity, cough, sputum nature and use of accessory muscle. It is done by inspection, auscultation and percussion.

2) Bio Physiological Measurement includes heart rate, respiratory rate and oxygen saturation by means of auscultation, inspection and by using pulse oximeter.

Score Interpretation:

Respiratory status assessment:

Clinical Parameters:

Score

0	-	Normal
1-7	-	Mild distress (35%)
8 – 14	-	Moderate distress (36 – 70%)
15 -20	-	Severe distress (71 – 100%)

Bio- Physiological parameters score (BPM)

Heart rate:

90 – 110beats/minute - 0 (Normal)

Above 110 – 124 beats/minute - 1(Tachycardia)

Above124beat/minute - 2 (Severe tachycardia)

Respiratory rate:

24 – 30 breaths/minute - 0(Normal)

Above 30 – 44 breaths/minute - 1(Tachypnea)

Above 44 breaths/minutes - 2 (Severe Tachypnea)

Oxygen Saturation:

91 - 100% - 0 (Normal SaO_2)

85 - 90% - 1 (Low SaO_2)

Less than 85% - 2 (Very low SaO_2)

Score:

0 -Normal BPM

1 – 3 - Mild/ Moderate altered BPM

4 – 6 - Severely altered BPM

Intervention protocol	*Experimental group*	*Control group*
Place	Pulmonology ward &Medical ward	Pulmonology ward & Medical ward
Dose	1oomls of warm water and followed by postural drainage	Performing Postural drainage alone
Duration	1 ½ hrs. for 2days	1 hr. for 2days
Frequency	Morning and Evening	Morning and Evening
Time	8am and 6pm	8am and 6pm
Administered by **:** Morning and Evening administered by Investigator		

Section - C

3.10.3. Content validity of the tool

The content validity refers to the degree to which instrument measures what is suppose to measure. The content of the tool was validated by Medical Expert, and Child Health Nursing Expert. The expert's suggestions were incorporated and the tool was finalized and used by the investigator for the main study.

3.11 Ethical consideration:

The study was conducted after obtaining approval from the Ethical committee, Madras Medical College, Chennai-03. The suggestions of the experts were incorporated in the study and the tool was finalized. After the modifications they agreed that this tool for assessing efficiency of consumption of warm water followed by Postural drainage in respiratory infected children with age group of 6 – 9 years.

3.12Pilot study:

The formal permission was obtained from the director, Institute of Child Health and a Hospital for Children, Chennai – 8. Pilot study is a trial run for the main study, to test the reliability, practicability and feasibility of the study. Pilot study was conducted in a Pulmonology ward and in Instituteof Child

Health and Hospital for Children, Chennai-8.For pilot study 10 children were selected by using convenient sampling technique. The samples fulfilled the inclusion criteria as described in the research study. Informed consent was obtained from the mothers of the children and data was collected for two consecutive days. The instrument was found reliable for proceeding with main study.The suggestion made was to increase the sample size from fifty to sixty. The intervention is carried out for two times a day for two days instead of once a day for 2days. The other opinion and suggestion were incorporated in the main study to accomplish the objectives of the study. Warm water 100ml given to children followed by 10 – 15 mints interval Postural drainage was performed.(10 positions).

Post test of Respiratory assessment and bio-physiological parameters are observed and recorded.

3.13 Reliability

After pilot study reliability of the tool was assessed using test, retest method and its correlation coefficient is 0.81. This correlation is very high and it is good tool for assess efficiency of consumption of warm water followed by postural drainage on respiratory status improvement of children.

3.14 Data collection procedure:

Permission was obtained from Director, Institute of child health and Hospital for children, Chennai. The period of study was from 16.07.2015 to 15.08.2015.After obtaining formal permission, brief introduction was given to the mother of children regarding the study and written consent was obtained from them and assured that confidentiality was maintained. Children those who fulfilled the inclusion criteria were chosen for the study and divided into two groups.

Part I

Assessingthe demographic variables.

Part II

Assessing the respiratory status of the children, samples were selected based on convenient sampling technique and first 30 samples (experimental group) were assigned for consumption of warm water followed by Postural drainage and next 30 samples (control group) were given only the Postural drainage. For the Experimental intervention were given for 1 and1/2 hours twice a day (Morning and Evening) for two days and for control group Postural drainage procedure were performed for 45minutes to 1hour twice a day (Morning and Evening) for two days.(includes assessment and recording time).

On the day of admission pre assessment was done on respiratory status which includes the Clinical Parameters and Bio physiological measurement and the score were recorded for both the groups. The post assessment was done on respiratory status on two days after the last intervention.

3.15 Dataentry and analysis:

Data analyze enables the researcher to reduce, summarize, organize, evaluate, interpret and communicate numerical information to obtain answer to research questions. The data were analyzed by using the descriptive statistics like frequency distribution. Percentage and inferential statistics like standard deviation, chi-square test, independent t-test. The significant finding was expressed in the form of tables and figures. $P<0.05$ was considered statistically significant.

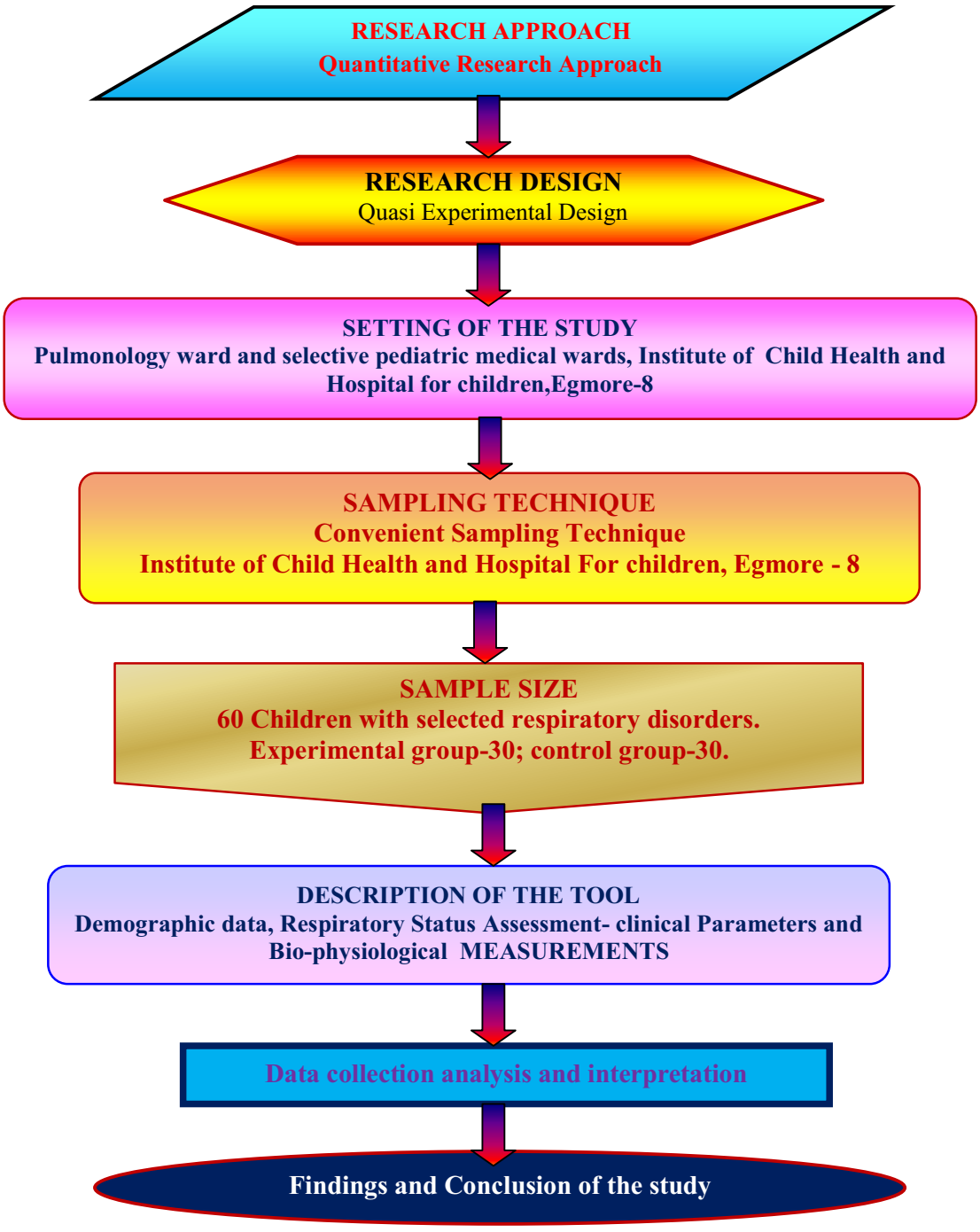


FIG: 2 SCHEMATIC REPRESENTATION OF THE STUDY

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collected.

Analysis is a method for rendering quantitative, meaningful and providing intellectual information. So that the research problem can be studied and tested including the relationship between the variables.

The data collected has been analyzed using appropriate statistical methods and the results that are described below.

ORGANISATION OF THE DATA

The findings of the study were grouped and analyzed under the following sections.

Section I	:	Distribution of demographic variables.
Section II	:	Assessment of the effectiveness of consumption of warm waterfollowed by postural drainage in selective respiratory infection of children in experimental group.
Section III	:	Assessment of the effectiveness of Postural drainage alone in selective respiratory infection of children in control group.
Section IV	:	Compare the respiratory status of children with respiratory infection in experimental group and control group.
Section V	:	Associate the post test level of respiratory status with selective demographic variables.

Table- 3. Demographic profile and comparison of demographic variables between experimental and control group

	Demographic Variables	Experimental Group		Control Group		Test
		N=30	in %	N=30	in %	
1	**Age Of the Child**					
	(a) 6 - 6.5 Years	**12**	**40.00**	**10**	**33.30**	χ^2=1.13 p=0.77
	(b) 6.5 - 7 Years	**5**	**17.00**	**7**	**23.35**	
	(c) 7.0 - 7.5 Years	**5**	**17.00**	**7**	**23.35**	
	(d) 7.5 - 8 Years	**8**	**26.00**	**6**	**20.00**	
2	**Sex of The Child**					
	(a) Male	**20**	**66.70**	**17**	**56.70**	χ^2=0.64 p=0.43
	(b) Female	**10**	**33.30**	**3**	**43.30**	
3	**Immunization Status**					
	(a) Upto Date	**26**	**86.70**	**18**	**60.00**	
	(b) Post Dated	**1**	**3.30**	**4**	**13.30**	Fisher's Exact p=0.16
	(c) Irregular	**1**	**3.30**	**4**	**13.30**	
	(d) Delayed Due to Illness	**2**	**6.70**	**4**	**13.40**	
4	**Weight of The Child**					
	(a) 18 - 20 Kgs	**20**	**66.70**	**18**	**60.00**	χ^2=0.51 p=0.78
	(b) 20 - 23 Kgs	**4**	**13.30**	**6**	**20.00**	
	(c) 23 - 25 Kgs	**6**	**20.00**	**6**	**20.00**	
5	**Previous Episode of Respiratory Infection**					
	(a) First Episode	**3**	**10.00**	**2**	**6.70**	
	(b) 2 - 3 Episodes	**16**	**53.40**	**15**	**50.00**	χ^2=0.48 p=0.78
	(c) 4 - 5 Episodes	**7**	**23.30**	**9**	**30.00**	
	(d) More than 5 Episodes	**4**	**13.30**	**4**	**13.30**	
6	**Frequency of Hospitalization**					
	(a) First Time	**12**	**40.00**	**12**	**40.00**	
	(b) 2 -3 Times	**12**	**40.00**	**14**	**46.70**	
	(c) 4 - 5 Times	**2**	**6.70**	**1**	**3.30**	χ^2=0.64 p=0.95
	(d) Above 5 Times	**4**	**13.30**	**3**	**10.00**	
7	**Duration of hospital stay during illness**	**N=30**	**%**	**N=30**	**%**	
	(a) Less than 3 Days	**11**	**36.60**	**11**	**36.60**	
	(b) 3 -5 Days	**14**	**46.70**	**14**	**46.70**	χ^2=0.00 p=1.00
	(c) 6 - 7 Days	**2**	**6.70**	**2**	**6.70**	
	(d) Above 7 Days	**3**	**10.00**	**3**	**10.00**	
8	**Child Exposure to Passive Smoking At Home**					
	(a) Exposed	**10**	**33.30**	**10**	**33.30**	χ^2=0.00 p=1.00
	(b) Not Exposed	**20**	**66.70**	**20**	**66.70**	
9	**Place of Living**					
	(a) Village	**0**	**0.00**	**0**	**0.00**	
	(b) Sub-Urban	**10**	**33.30**	**10**	**33.30**	χ^2=1.37 p=1.00
	(c) City	**20**	**66.70**	**20**	**66.70**	
10	**Monthly Income**					
	(a) Below Rs. 5000	**1**	**3.30**	**1**	**3.30**	χ^2=0.00 p=1.00
	(b) Rs. 5000 - 7000	**26**	**86.70**	**26**	**86.70**	
	(c) Above 7000	**3**	**10.00**	**3**	**10.00**	

P <0.05 is Considered Statistically Significant.

History of previous episodes of infection was in equal proportion (53.3%) in experimental group and (50.0%) in control group had 2 – 3 episodes of infection.

Frequency of hospitalization was of (40%) in both experimental group and control group who visited hospital for the first time and majority (40.0%) in experimental group and (46.7%) in control group visited for 2 – 3 times for the same illness.

The duration of hospital stay for the majority was (53.3%) in control group and in (36.7%) in experimental group who stayed for less than 3 days in hospital and majority (46.7%) in experimental group and (30.0%) in control group stayed for 3 – 5 days.
Concerned with the exposure of passive smoking at home to be equal proportion experimental group is (33.30%) and in control group were not exposed to passive smoking is (66.70%).

TABLE – 4 : Comparison Of Pre And Post Test Clinical Parameters Score Among Experimental Group Children

	No.of children	Pre test Mean ± SD	Post test Mean ± SD	Student's Paired t-test
Clinical parameter score	30	11.33±2.32	4.17±2.48	t = 24.88 P= 0.001***

significant at P ≤ 0.05* highly significant at P ≤ 0.01** very high significant at P ≤ 0.001***

Table no.4 shows the comparison of respiratory status clinical parameter score before and after the administration of warm water with postural drainage and percussion.

On an average, a decrease is seen in children with respiratory disorder with regard to the clinical parameter distress score from 11.33 to 4.17 after the administration of warm water with postural drainage and percussion. Due to warm water with postural drainage and percussion they are able to reduce 7.16 score from base line score. This reduction is statistically significant. statistical significance was calculated by using student's paired 't'test. Thus it is evident that the consumption of warm water with postural drainage and percussion is more effective in children with respiratory disorder in improving clinical parameter score.

TABLE –5 :Comparison Of Pre And Post Test Bio-physiological Parameters Score Among Experimental Group Children

LEVEL OF BIO-PHYSIOLOGICAL PARAMETERS		PRE-TEST SCORE		POST-TEST SCORE		PEARSON CHI SQUARE TEST
		N	in %	N	in %	
Experimental Group	Normal	0	0.0	13	43.3	χ^2 = 13,14 P = (0.001***)
	Mild / moderate	12	40.0	17	56.7	
	Severe	18	60.0	0	0.0	

Table no.5, shows the comparison of respiratory status bio-physiological parameter score before and after the consumption of warm water with postural drainage and percussion using chi-square test.

On an average, children with respiratory disorder are reduced their bio-physiological parameter score. In pretest none of the children had shown normal bio-physiological parameter score, 12 (40%) showed mild to moderate and 18 (60.0%) 0 showed severe.

In post test 13 (43.3%) of children moved to normal, 17 (56.7%) of children moved to mild/moderate from severely altered bio-physiological parameter. This reduction is statistically significant (P = 0.001***). Statistical significance was calculated by using chi square test. Thus it is evident that the consumption of warm water with postural drainage and percussion is more effective in improving bio-physiological parameter score.

TABLE –6 : COMPARISON OF PRE AND POST TEST CLINICAL PARAMETERS SCORE AMONG CONTROL GROUP CHILDREN

	No.of children	**Pre test Mean ± SD**	**Post test Mean ± SD**	**Student's Paired t-test**
Clinical parameter score	30	11.17±1.89	7.90±1.32	t = 6.65 P= 0.001***

* significant at P ≤ 0.05** highly significant at P ≤ 0.01*** very high significant at P ≤ 0.001***

Table no.6 shows the comparison of respiratory status clinical parameter score before and after the consumption of warm water with postural drainage.

On an average, children with respiratory disorder showed a decline in their clinical parameter score from 11.33 to 7.90 after the warm water and postural drainage. Due to warm water they were able to reduce 3.27 score from base line score. This reduction was statistically significant. Statistical significance was calculated by using student's paired 't'test. Thus it is evident that children with respiratory disorders shows less improvement in their clinical parameter score after the postural drainage alone.

TABLE 7 – COMPARISON OF POST TEST CLINICAL PARAMETERSTO COMPARE THE RESPIRATORY STATUS OF CHILDREN WITH RESPIRATORY DISORDERS IN EXPERIMENTAL AND CONTROL GROUP

S. No	CLINICAL PARAMETERS		Experimental Group		Control Group		Test
			N=30	in %	N=30	in %	
1	CHEST MOVEMENTS	Symmetrical	23	76.70	13	43.30	χ^2=6.94 p<0.01**
		Less Symmetrical	7	23.30	16	53.30	
		Unequal	0	0.00	1	3.30	
2	WORK OF BREATHING	Normal	6	20.00	0	0.00	χ^2=30.67 p<0.01**
		Difficulty	21	70.00	8	26.70	
		Noisy	3	10.00	22	73.30	
3	CHEST RETRACTION	No retraction	15	50.00	4	13.30	χ^2=18.41 p<0.01**
		Intermittent	15	50.00	14	46.70	
		Continuous	0	0.00	12	40.00	
4	NASAL FLARING	Absent	30	100.00	25	83.30	Fisher's exact p=0.05*
		Intermittent	0	0.00	5	16.70	
5	AIR ENTRY	Bilateral	30	100.00	25	83.30	Fisher's exact p=0.05*
		Unilateral	0	0.00	5	16.70	
6	BREATH SOUNDS	Normal	5	16.70	0	0.00	χ^2=23.81 p<0.01**
		Wheeze	20	66.70	8	26.70	
		Severe Wheeze	5	16.60	22	73.30	
7	COUGH	No Cough	5	16.70	5	16.70	χ^2=1.75 df=2 p=0.42
		Intermittent	21	70.00	17	56.70	
		Persistent	4	13.30	8	26.60	
8	CAPILARY REFILL	<2 Seconds	30	100.00	30	100.00	Fisher's exact p=0.05*
		>3 Seconds	0	0.00	0	0.00	
9	SPUTUM NATURE	No Sputum	23	76.70	10	33.30	χ^2=17.19 p<0.01**
		Thin Mucoid	7	23.30	8	26.70	
		Thick Purulent	0	0.00	12	40.00	
10	USE OF ACCESSORY MUSCLE	Nasal Breathing	22	73.30	3	10.00	χ^2=29.63 p<0.01**
		Mouth Breathing	8	26.70	13	43.30	
		Strenuous Muscle Breathing	0	0.00	14	46.70	

P<0.05* is considered Statistically Significant ; highly significant at p<0.01** ; very highly significant at p<0.001***.

Table shows that in the post test, with regard to the clinical parameters, there was a Statistically significant difference between experimental and Control group except for the clinical parameters of nasal flaring , Air entry, cough and child activity. Chi square test/YATES Corrected Chi-square test and Fisher Exact test applied as per the data.

TABLE 8 - COMPARISON OF HEART RATE

S. No	BIO - PHYSIOLOGICAL PARAMETERS				Experimental Group		Control Group		Test
1	HEART RATE				N=30	in %	N=30	in %	
	DAY 1	MORNING	PRE TEST	90 – 110	4	13.30	2	6.70%	χ^2=0.74 p=0.69
				110 – 124	14	46.70	15	50.00%	
				> 124	12	40.00	13	43.30	
			POST TEST	90 – 110	4	13.30	2	6.70	χ^2=0.74 p=0.69
				110 – 124	14	46.70	15	50.00	
				> 124	12	40.00	13	43.30	
2	DAY 1	EVENING	PRETEST	90 – 110	5	16.70	2	6.70	χ^2=1.47 p=0.48*
				110 – 124	13	43.30	15	50.00	
				> 124	12	40.00	13	43.30	
			POST TEST	90 – 110	13	43.30	2	6.70	χ^2=11.26 p=0.04*
				110 – 124	11	36.70	15	50.00	
				> 124	6	20.00	13	43.30	
3	DAY 2	MORNING	PRETEST	90 – 110	13	43.30	3	10.00	χ^2=10.39 p=0.01**
				110 – 124	13	43.30	15	50.00	
				> 124	4	13.30	12	40.00	
			POST TEST	90 – 110	24	80.00	9	30.00	χ^2=17.02 p<0.01** Highly Significant
				110 – 124	6	20.00	14	46.70	
				> 124	0	0.00	7	23.30	
4	DAY 2	EVENING	PRETEST	90 – 110	24	80.00	9	30.00	χ^2=16.68 p<0.01**
				110 – 124	6	20.00	15	50.00	
				> 124	0	0.00	6	20.00	
			POST TEST	90 – 110	30	100.00	10	33.30	χ^2=30.00 p<0.01**
				110 – 124	0	0.00	17	56.70	
				> 124	0	0.00	3	10.00	

Table compares Heart rate between Experiment and control group children. It is seen that there was no difference between experiment and control group till first day evening pretest and from first day evening post test , there is a significant to highly significant difference between experiment and control group with regard to Heart rate.

TABLE 9 - Comparison of Respiratory Rate

S. No	Bio - Physiological Parameters				Experimental Group		Control Group		Test
	Respiratory Rate				N	in %	N	in %	
1	DAY 1	MORNING	PRE TEST	24 - 30	0	0.00	0	0.00	χ^2=0.16 p=0.69
				30 - 44	4	13.30	3	10.00	
				> 44	26	86.70	27	90.00	
			POST TEST	24 - 30	0	0.00	0	0.00	χ^2=0.16 p=0.69
				30 - 44	4	13.30	3	10.00	
				> 44	26	86.70	27	90.00	
2	DAY 1	EVENING	PRETEST	24 - 30	0	0.00	0	0.00	χ^2=0.16 p=0.69
				30 - 44	4	13.30	3	10.00	
				> 44	26	86.70	27	90.00	
			POST TEST	24 - 30	0	0.00	0	0.00	χ^2=0.16 p=0.69
				30 - 44	4	13.30	3	10.00	
				> 44	26	86.70	27	90.00	
3	DAY 2	MORNING	PRETEST	24 - 30	0	0.00	0	0.00	χ^2=3.35 p=0.13
				30 - 44	10	33.30	4	13.30	
				> 44	20	66.70	26	86.70	
			POST TEST	24 - 30	3	10.00	0	0.00	χ^2=12.29 p<0.01**
				30 - 44	17	56.70	7	23.30	
				> 44	10	33.30	23	76.70	
4	DAY 2	EVENING	PRETEST	24 - 30	4	13.30	0	0.00	χ^2=12.29 p<0.01**
				30 - 44	16	53.30	8	26.70	
				> 44	10	33.40	22	73.30	
			POST TEST	24 - 30	13	43.30	0	0.00	χ^2=27.38 p<0.001***
				30 - 44	15	50.00	11	36.70	
				> 44	2	6.70	19	63.30	

Table compares Respiratory rate between experimental and control group children. It is seen that there was no difference between experimental and control group till second day morning pretest and from second day morning post test, there is a significant to highly significant difference between experimental and control group with regard to respiratory rate

TABLE 10 - COMPARISON OF OXYGEN SATURATION

S.No	BIO - PHYSIOLOGICAL PARAMETERS				Experimental Group		Control Group		Test
	OXYGEN SATURATION				N	in %	N	in %	
1	DAY 1	MORNING	PRETEST	90% - 100%	14	46.70	16	53.30	χ^2=1.168 p=0.56
				80% - 90%	15	50.00	14	46.70	
				< 80%	1	3.30	0	0.00	
			POST TEST	90% - 100%	17	56.70	16	53.30	χ^2=1.18 d p=0.55
				80% - 90%	12	40.00	14	46.70	
				< 80%	1	3.30	0	0.00	
2	DAY 1	EVENING	PRETEST	90% - 100%	17	56.70	16	53.30	χ^2=1.184 p=0.553
				80% - 90%	12	40.00	14	46.70	
				< 80%	1	3.30	0	0.00	
			POST TEST	90% - 100%	14	46.70	16	53.30	χ^2=1.168 p=0.56
				80% - 90%	15	50.00	14	46.70	
				< 80%	1	3.30	0	0.00	
3	DAY 2	MORNING	PRETEST	90% - 100%	25	83.30	19	63.30	χ^2=3.07 p=0.1
				80% - 90%	5	16.70	11	36.70	
				< 80%	0	0.00	0	0.00	
			POST TEST	90% - 100%	30	100.00	20	66.67	χ^2=12.00 p<0.01**
				80% - 90%	0	0.00	10	33.33	
				< 80%	0	0.00	0	0.00	
4	DAY 2	EVENING	PRETEST	90% - 100%	30	100.00	22	73.33	χ^2=9.23 p<0.01
				80% - 90%	0	0.00	8	26.67	
				< 80%	0	0.00	0	0.00	
			POST TEST	90% - 100%	30	100.00	24	80.00	χ^2=6.67 p=0.02*
				80% - 90%	0	0.00	6	20.00	
				< 80%	0	0.00	0	0.00	

Table compares oxygen Saturation between Experiment and control group children. It is seen that there was no difference between experiment and control group till second day morning pretest and from second day morning post test , there is a significant difference between experiment and control group with regard to oxygen Saturation.

TABLE 11 : COMPARISON OF BIOPHYSIOLOGICAL PARAMETERS AMONG EXPERIMENTAL AND CONTROL GROUP

S. No	LEVEL OF BIO - PHYSIOLOGICAL PARAMETERS		Experimental group		Control Group		Test
			N=30	in %	N=30	in %	
1	PRETEST	NORMAL	0	0.00	0	3.30	χ^2=0.61 p=0.44
		MILD/MODERATE	12	40.00	15	50.00	
		SEVERE	18	60.00	15	50.00	
2	POST TEST	NORMAL	13	43.30	0	0.00	χ^2=26.49 p<0.001**
		MILD/MODERATE	17	56.70	25	83.40	
		SEVERE	0	0.00	5	16.60	

P < 0.001**Highly Significant.

Table compares the levels of Bio-physiological parameters between experimental and control group. In pretest there is no difference between experimental and control group children. In post test there is a highly significant difference between experimental and control group.

TABLE 12 Association between selected demographic variables with posttest level of clinical parameter score of children in experimental group.

Association of demographic variables with post test level of respiratory status of children

S. No	DEMOGRAPHIC VARIABLES		LEVEL OF CLINICAL PARAMETERS				TOTAL	TEST
			NORMAL		MILD/MODERATE DISTRESS			
			N	in %	N	in %		
1	Age	6 - 7 Yrs	0	0.00	17	100.00	17	Fisher's Exact-p<0.01*
		7 - 8 Yrs	5	38.50	8	61.50	13	
2	Sex	Male	4	20.00	16	80.00	20	Fisher's Exact-p=0.640
		Female	1	10.00	9	90.00	10	
3	Immunization Status	(a) Upto Date	15	57.70	11	42.30	26	X^2=6.17-p=0.1*
		(b) Post Dated	0	0.00	1	100.00	1	
		(c) Irregular	0	0.00	1	100.00	1	
		(d) Delayed Due to Illness	0	0.00	2	100.00	2	
4	Weight of The Child	(a) 18 - 20 Kgs	12	60.00	8	40.00	20	x2=7.88 p=0.03*
		(b) 20 - 23 Kgs	4	100.00	0	0.00	4	
		(c) 23 - 25 Kgs	6	100.00	0	0.00	6	
5	Previous Episode of Respiratory Infection	First Episode	0	0.00	3	100.00	3.00	X2=1.17 p=0.56
		More than 1 Episodes	5	18.50	22	81.50	27.00	
6	Frequency Of Hospitalization	First Time	2	16.70	10	83.30	12.00	Fisher's Exact-p=1.00
		Above 1 Time	3	16.70	15	83.30	18.00	
7	Duration of hospital stay during illness	Less than 3 Days	7	63.6	4	36.4	11	X^2=12.54 p<0.01*
		More than 3 Days	1	5.3	18	94.7	19	
8	Child exposure to passive smoking at home	Exposed	1	10.00	9	90.00	10.00	Fisher's Exact-p=0.64
		Not Exposed	4	20.00	16	80.00	20.00	
9	Place of living	Rural/Semi Urban	2	20.00	8	80.00	10.00	Fisher's Exact-p=1.000
		Urban	3	15.00	17	85.00	20.00	
10	Monthly income	Less than or equal to Rs. 7000	4	14.80	23	85.20	27.00	Fisher's Exact-p=0.43
		More than Rs. 7000	1	33.30	2	66.70	3.00	

Table shows the association between demographic variables and their level of post test distress score. Age, Weight and duration of hospital stay are associated with the post test level distress score. And it is found to be statistically significant.Older children, children with normal weight and children whose duration of hospital stay is less are with normal clinical parameter score than others. Data analyzed using chisquare test/Yates corrected chi square Test/Fisher's Exact test as applicable.

Table 13 Association between selected demographic variables with post test level of bio physiological parameter score of children in experimental group.

Association of demographic variables with post test level of respiratory status of children

S. No	DEMOGRAPHIC VARIABLES		LEVEL OF BIO-PHYSIOLOGICAL PARAMETERS				TOTAL	TEST
			NORMAL		MILD/MODERATE DISTRESS			
			N	in %	N	in %		
1	AGE	6 - 7 Yrs	7	41.20	10	58.80	17	χ^2=0.74 p=0.785
		7 - 8 Yrs	6	46.20	7	53.80	13	
2	SEX	Male	9	45.00	11	55.00	20	χ^2=0.07 p=1.000
		Female	4	40.00	6	60.00	10	
3	IMMUNIZATION STATUS	Upto Date	13	50.00	13	50.00	26	χ^2=1.17 p=0.56
		Not Upto Date	0	0.00	4	100.00	4	
4	WEIGHT OF THE CHILD	Below Normal	8	33.30	16	66.70	24	χ^2=4.887 p=0.06
		Normal	5	83.30	1	16.70	6	
5	PREVIOUS EPISODE OF RESPIRATORY INFECTION	First Episode	1	33.30	2	66.70	3	χ^2=0.136 p=1.000
		More than 1 Episode	12	44.40	15	55.60	27	
6	FREQUENCY OF HOSPITALISATION	First Time	4	33.30	8	66.70	12	χ^2=0.81 p=0.47
		Above 1 Time	9	50.00	9	50.00	18	
7	DURATION OF HOSPITAL STAY DURING Illness	Less than 3 Days	4	36.40	7	63.60	11	χ^2=0.34 p=0.71
		More than 3 Days	9	47.40	10	52.60	19	
8	CHILD EXPOSURE TO PASSIVE SMOKING AT HOME	Exposed	1	10.00	9	90.00	10	Fisher's Exact- p=0.02*
		Not Exposed	12	60.00	8	40.00	20	
9	PLACE OF LIVING	Rural/Semi Urban	7	70.00	3	30.00	10	χ^2=4.34 p=0.06
		Urban	6	30.00	14	70.00	20	
10	MONTHLY INCOME	Below Rs. 7000	11	40.70	16	59.30	27	χ^2=0.74 p=0.57
		More than Rs. 7000	2	66.70	1	33.30	3	

Table shows the association between demographic variables and their post test level of bio physiological parameter score.

Child's exposure to passive smoking is significantly associated with post test level of bio physiological parameter score.Children exposed to passive smoking are more in the mild/moderate score compared to children not exposed to passive smoking.

TABLE-14 Comparison of Pretest and Post Test Respiratory Rate among Experimental Group Children

Respiratory Rate	**No. of Children**	**Pre Test Median(range)**	**Post Test Median(range)**	**Wilcoxon Signed Rank test**
	30	40(26-48)	32(26-46)	**P<0.001*** Very high Significance**

Respiratory Rate	**Mean**	**Std Deviation**	**Minimum**	**Maximum**
Pre Test	40.13	6.45	26	48
Post Test	30.53	5.28	26	46

Table shows the comparison of respiratory rate in pretest and post test in experimental group.

On an average, a decrease in the respiratory rate is seen with regard to pretest and post test .A decrease in Respiratory rate is evident by consumption of warm water followed by postural drainage This reduction is very highly significant. Statistical test applied is Wilcoxon Signed rank test.

TABLE-15 Comparison of Pretest and Post Test Respiratory Rate among Control Group Children

Respiratory Rate	No. of Children	Pre Test Median(range)	Post Test Median(range)	Wilcoxon Signed Rank test
	30	46(40-48)	46(32-46)	P=0.02* Significant

Respiratory Rate	Mean	Std Deviation	Minimum	Maximum
Pre Test	44.67	2.94	40	48
Post Test	41.47	6.08	32	46

Table shows the comparison of respiratory rate in pretest and post test in control group.

On an average, the respiratory rate is found to be the same with regard to pretest and post test . But A there is a difference in the range between pretest and post test and a considerable decrease in respiratory rate is found .This reduction is highly significant. Statistical test applied is Wilcoxon Signed rank test.

TABLE 16 --COMPARISON OF PRE TEST AND POST TEST BIOPHYSIOLOGICAL PARAMETER SCORE AMONG CONTROL GROUP

S.No	LEVEL OF BIO-PHYSIOLOGICAL PARAMETERS		PRE TEST		POST TEST		Test
			N=30	in %	N=30	in %	
1	Control Group	NORMAL	0	0.00	0	0.00	χ^2=7.5 p<0.01** highly significant
		MILD/MODERATE	15	50.00	25	83.4	
		SEVERE	15	50.00	5	16.6	

Table shows the comparison of Respiratory status bio-physiological parameter score before and after the postural drainage in control group.

In pre test none of the children was in normal score. 50% of the children were in Mild/Moderate and 50% in severe score. In post test none of the children was in normal score but 83.4% were in mild/moderate score and only 16.6% of the children were in severe score. Thus in post test ,children from severe score moved to mild/moderate score. And this reduction is found to be statistically significant.

Thus it is found that postural drainage alone is less effective in children with respiratory disorder and it improves bio-physiological parameter score slowly.

TABLE 17 --Comparison Of Pre Test And Post Test Biophysiological Parameter Score Among Experimental Group.

S.No	LEVEL OF BIO - PHYSIOLOGICAL PARAMETERS		PRE TEST		POST TEST		Test
			N = 30	in %	N = 30	in %	
1	Experimental Group	Normal	0	0.00%	13	43.3%	χ^2=26.486 df=2 p<0.001 Very high Significance
		Mild/Moderate	12	40.0%	17	56.7%	
		Severe	18	60.00%	0	0.00%	

Table shows the comparison of Respiratory status bio-physiological parameter score before and after the postural drainage followed by consumption of warm water.

In pre test none of the children was in normal score. 40% of the children were in Mild/Moderate score and 60% in severe score. In post test 43.3% of the children were in normal score and 56.7% of the children were in mild/moderate score and none of the children were in severe score. Thus in post test children from severe score moved to mild/moderate score and normal score. And this reduction is found to be very highly statistically significant.

Thus it is found that postural drainage followed by consumption of warm water is more effective in improving bio-physiological parameter score in children with respiratory tract infection.

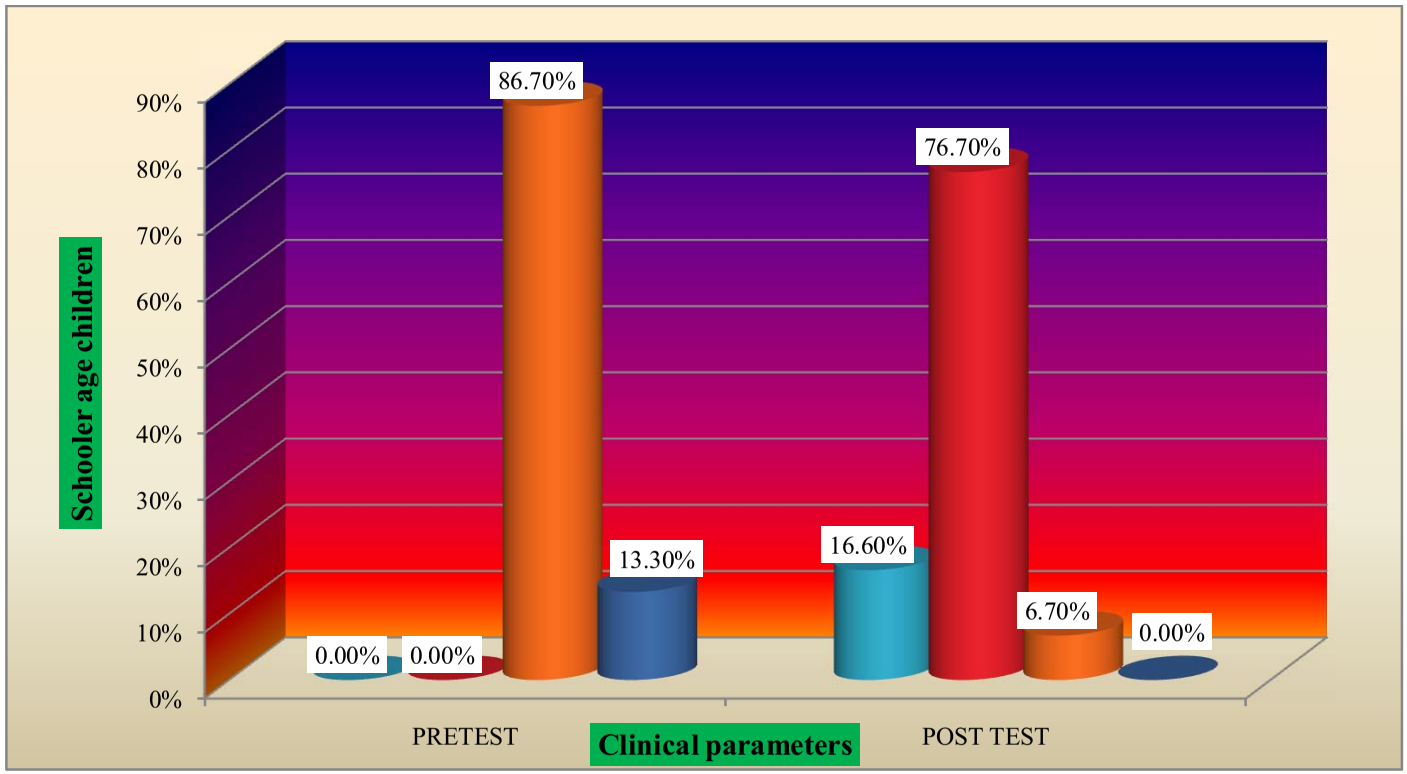


Fig – 3 Pretest and post test of clinical parameters respiratory distress score

SECTION – II TO DETERMINE THE EFFECT OF COSUMPTION OF WARM WATER WITH POSTURAL DRAINAGE ON RESPIRATORY STATUS OF CHILDREN IN EXPERIMENTAL GROUP.

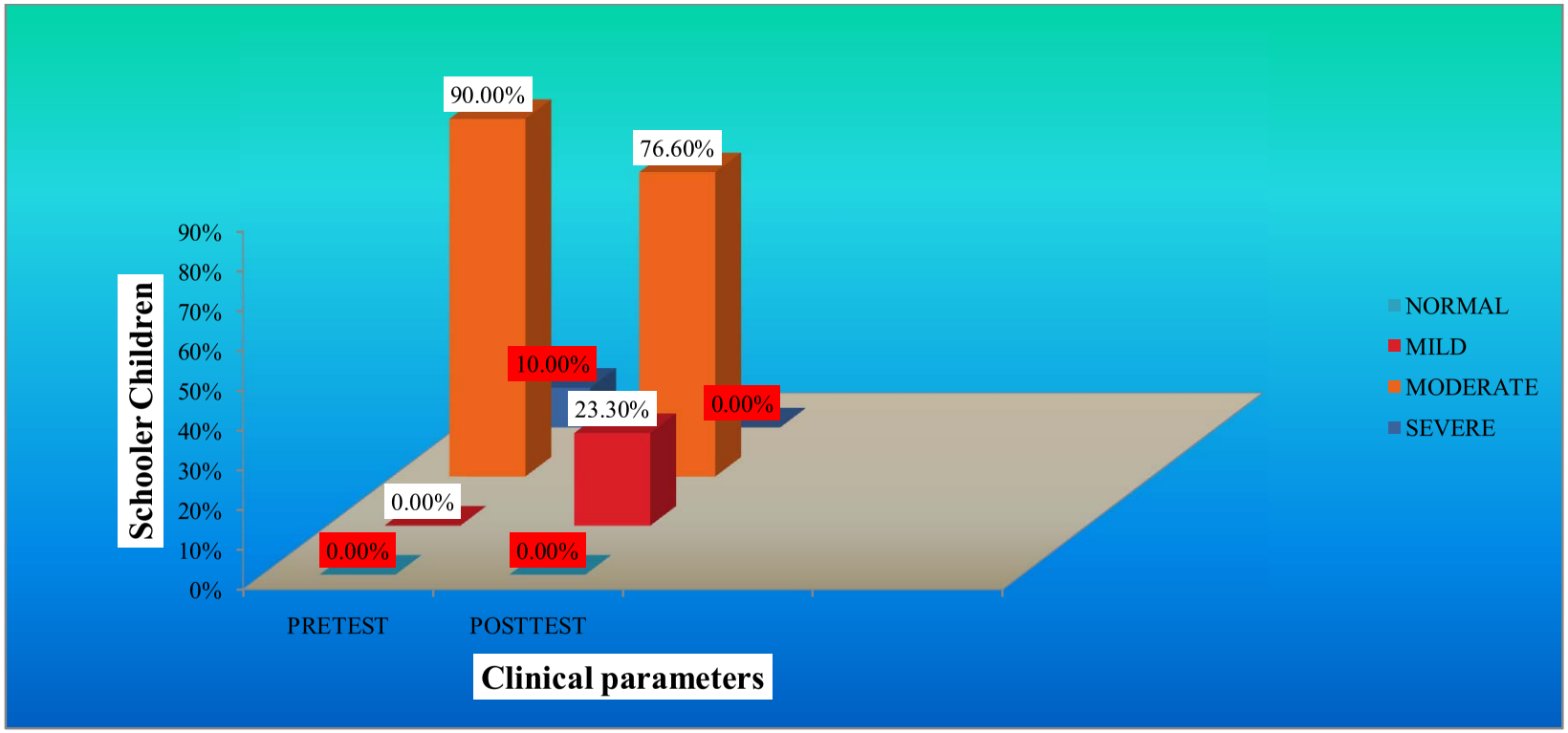


Fig – 4: Pretest and post test level of clinical parameter distress score (control)

Section III : To Assess The Effect Of Postural Drainage On Respiratory Status Of Children In Control Group

Figure- 5 : Percentage distribution of Respiratory rate in control group

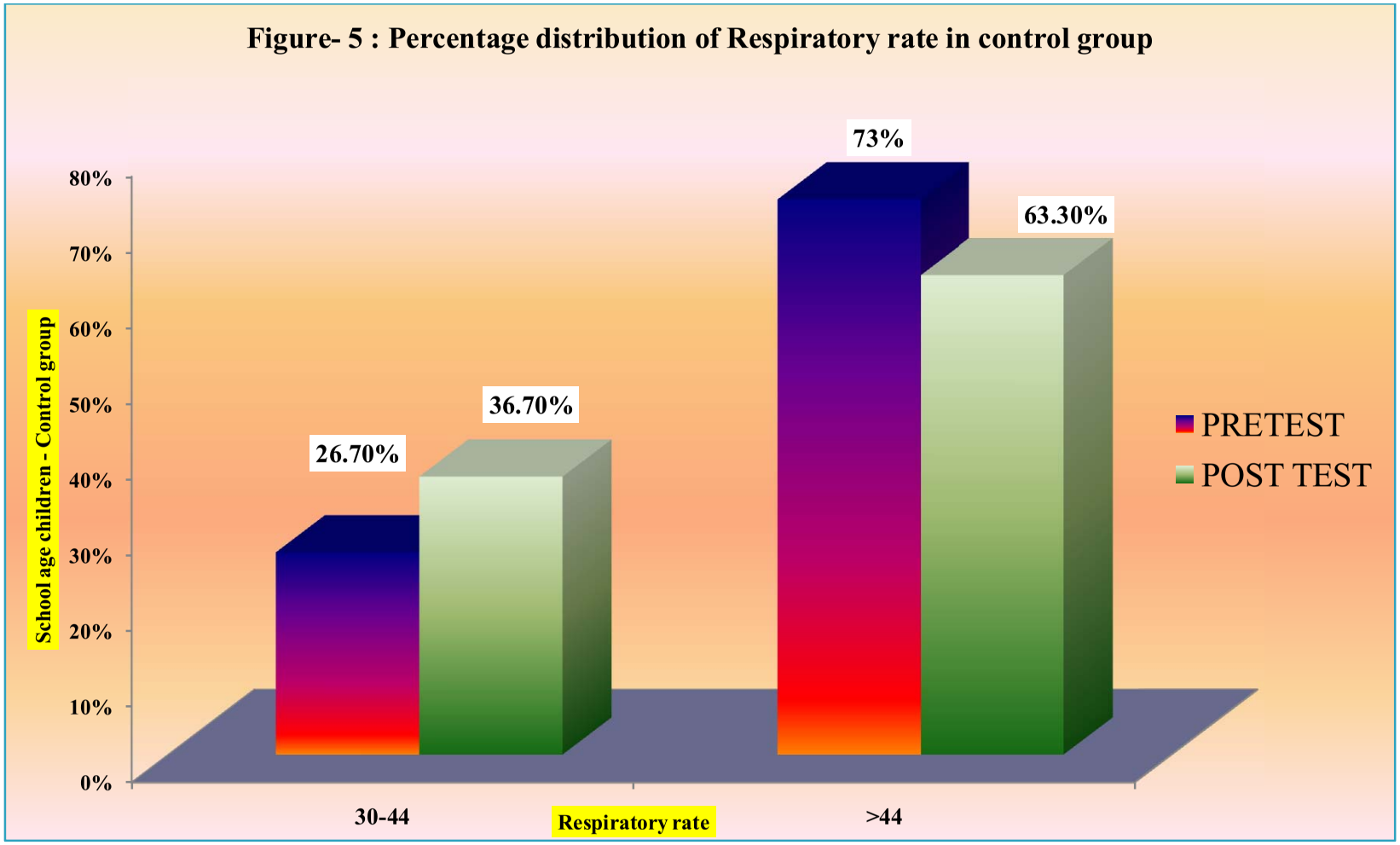


Figure 6: Percentage Distribution of Respiratory Rate in Experimental Group

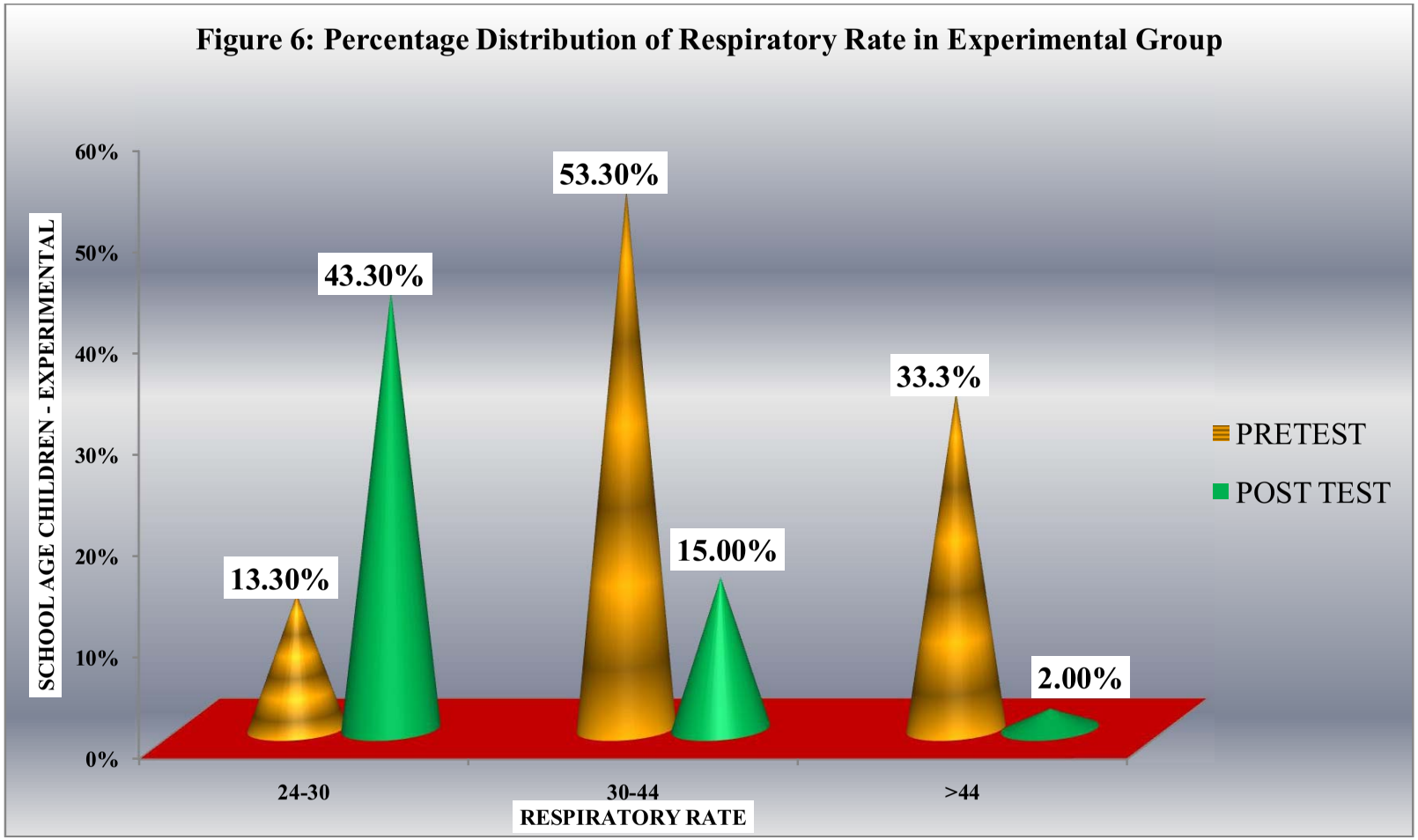


Fig- 7Percentage Distribution of level of Biophysiological Parameters in Experimental Group

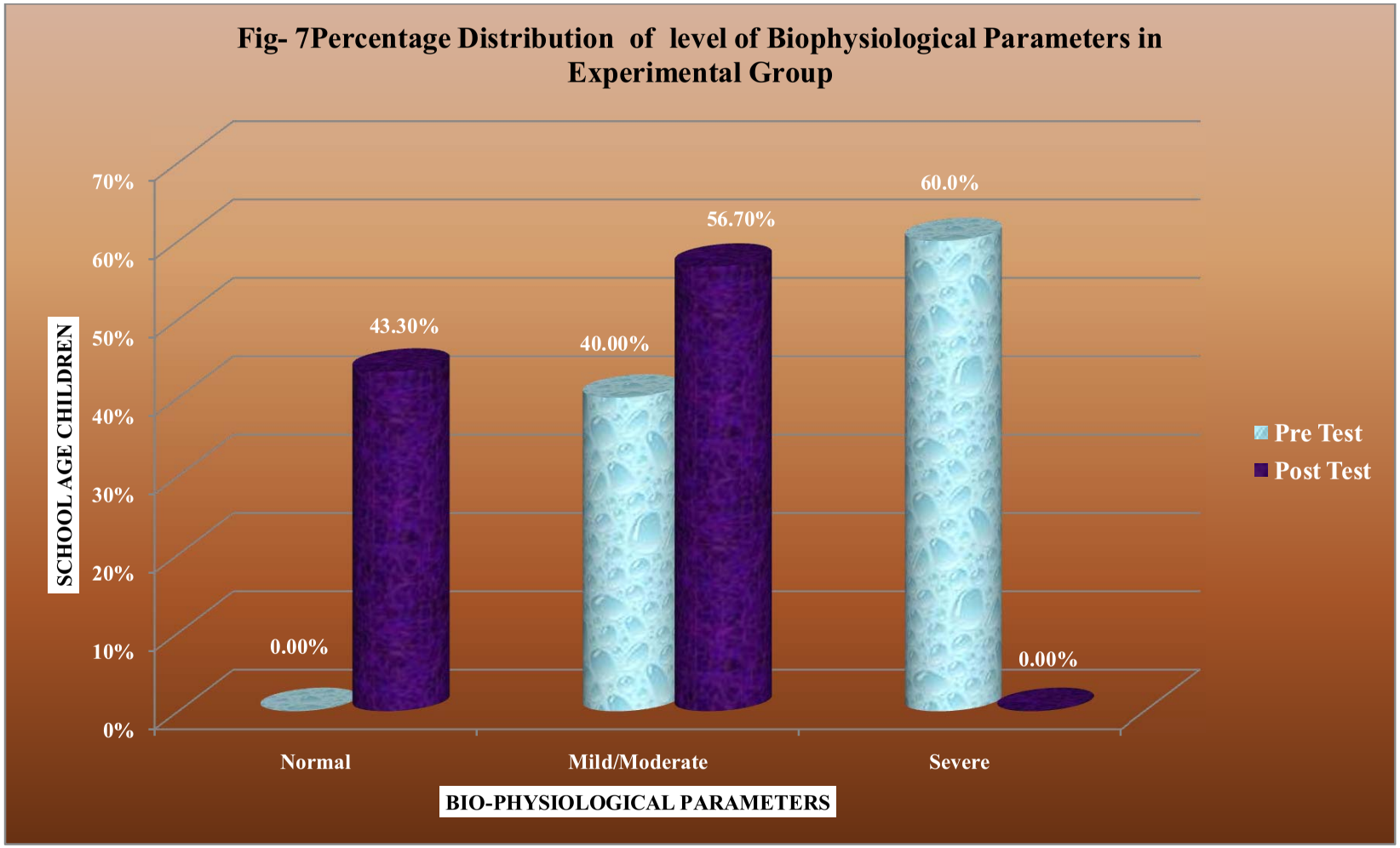


Fig - 9 DISTRIBUTION OF AGE IN EXPERIMENTAL GROUP

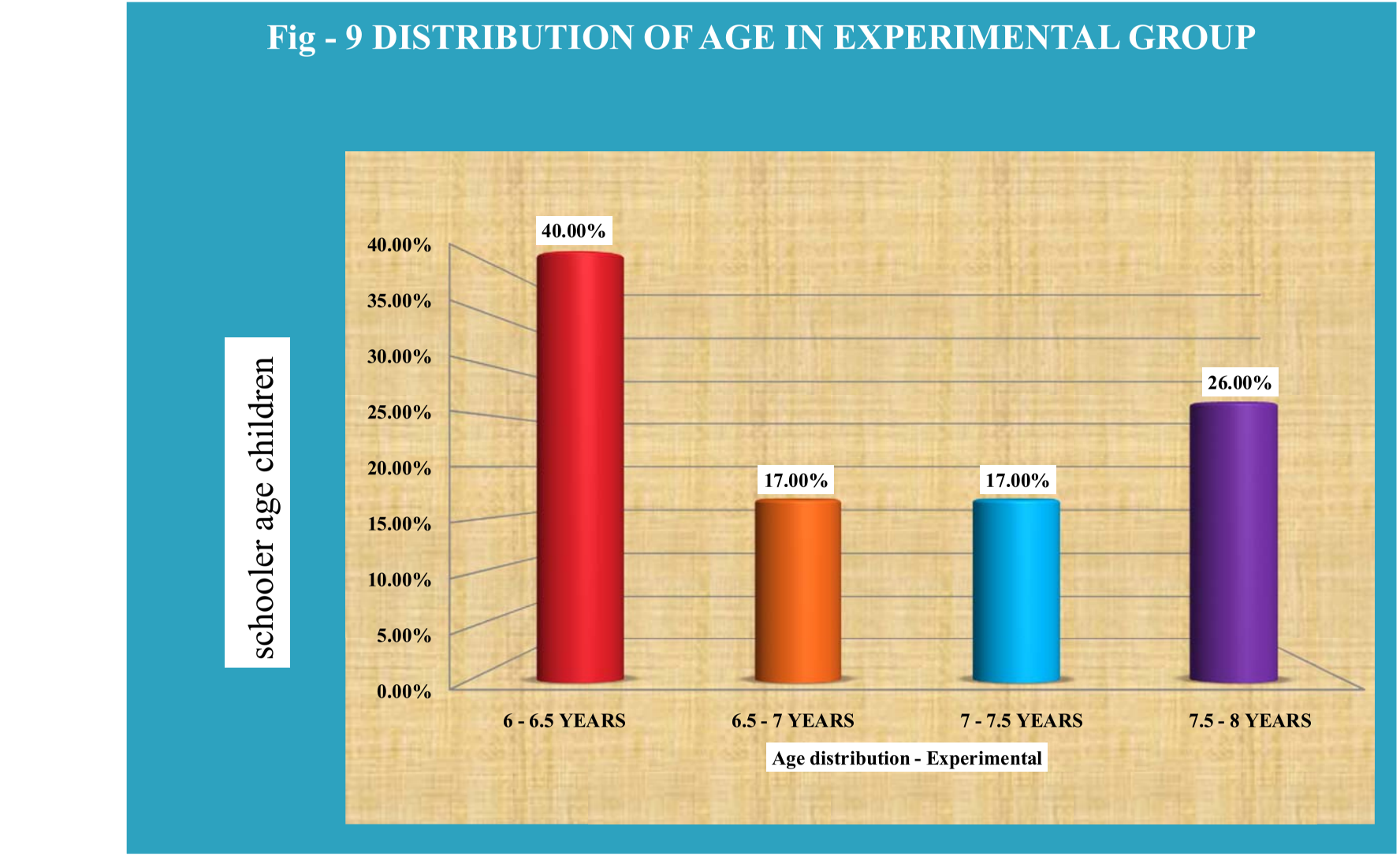


Fig - 9 DISTRIBUTION OF AGE IN EXPERIMENTAL GROUP

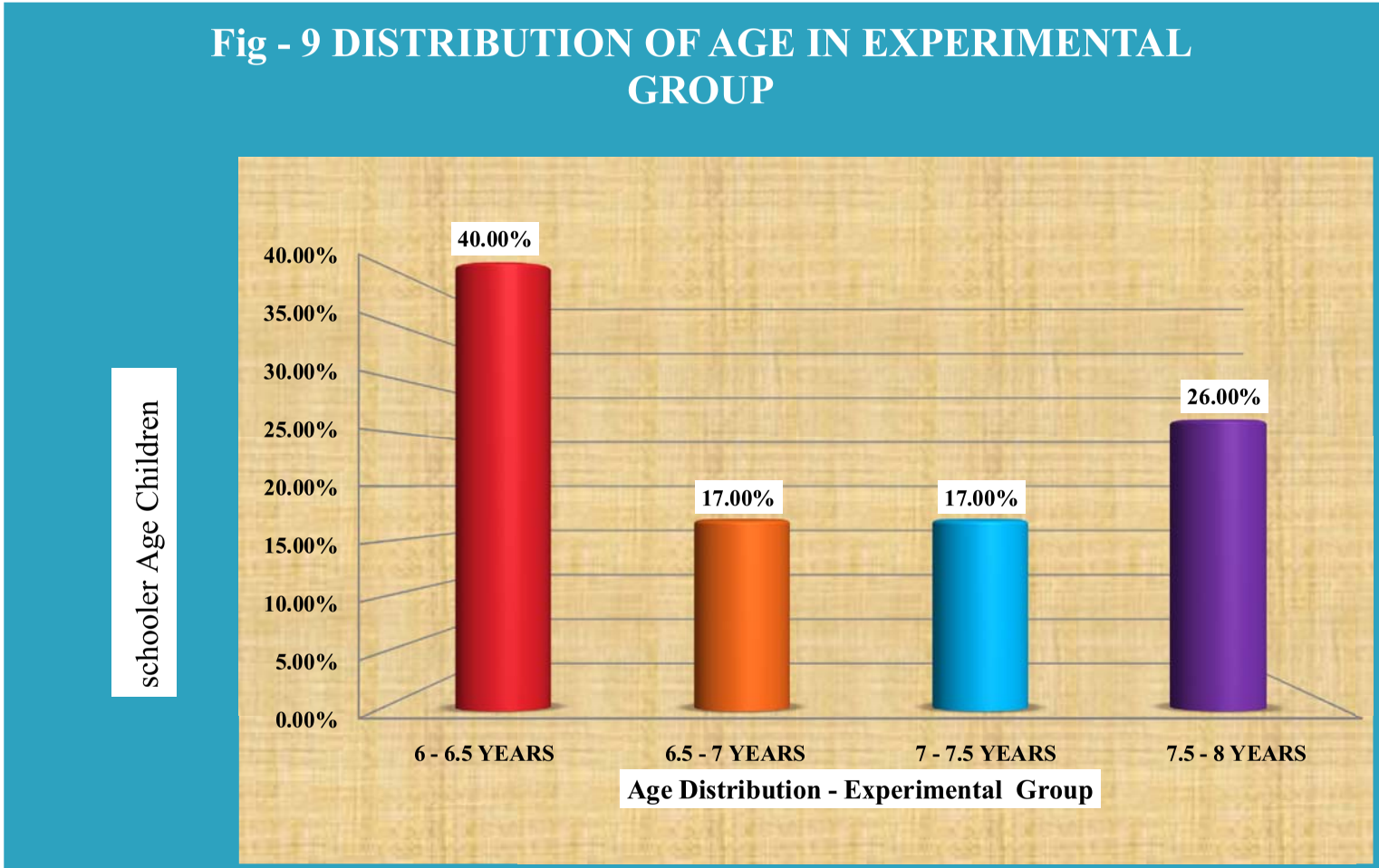


Fig - 10 Distribution of Age in Control Group

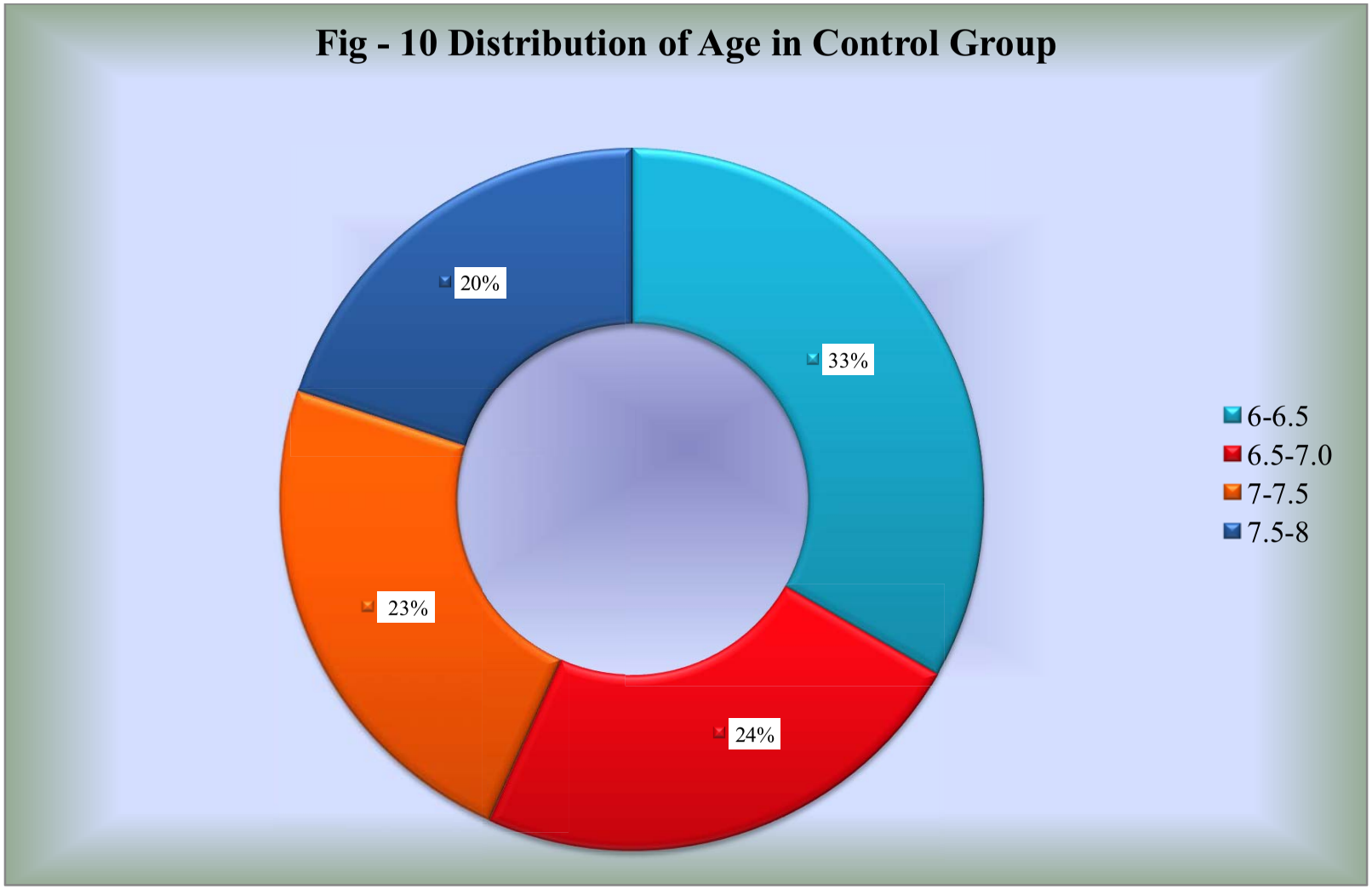
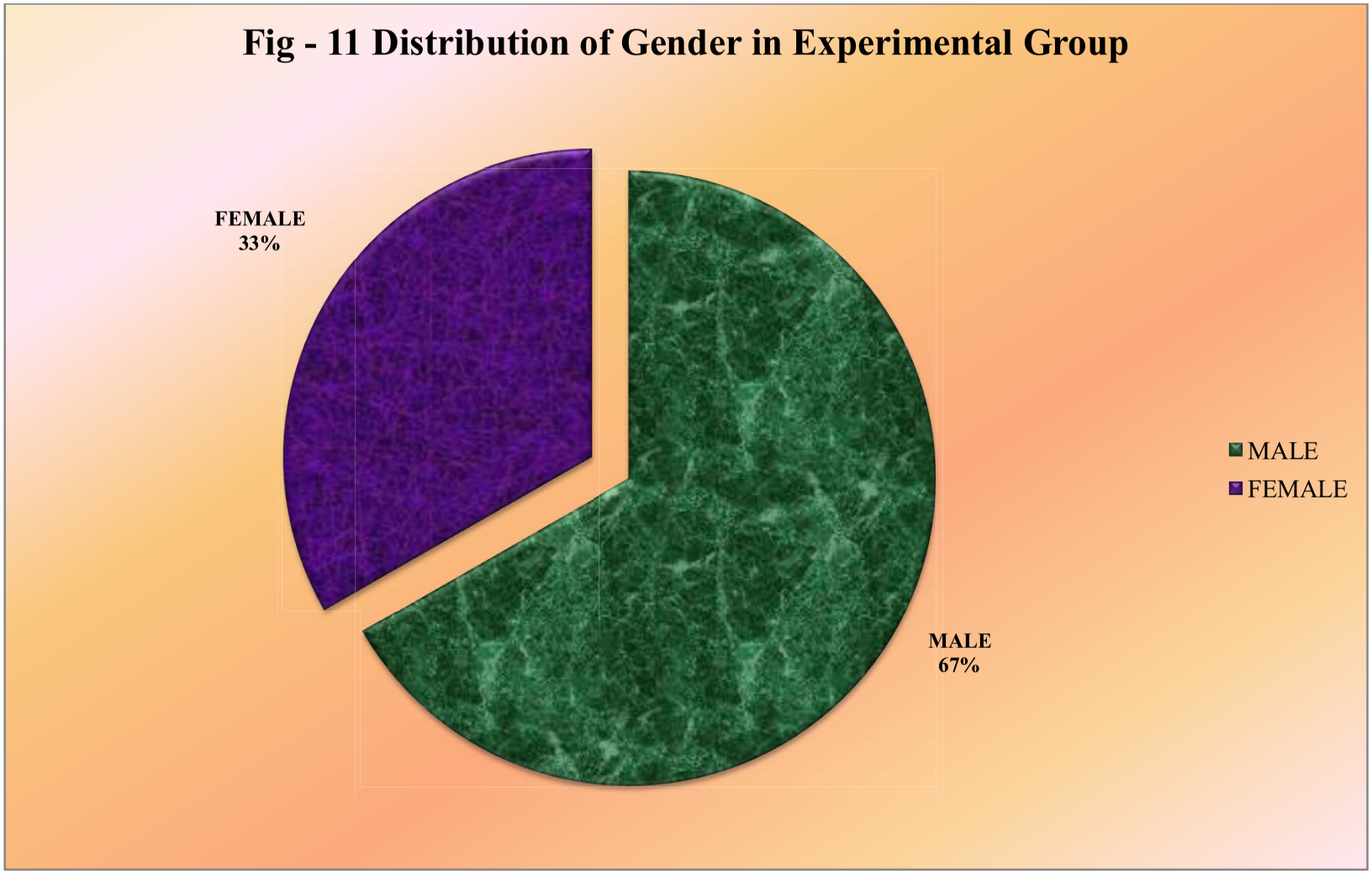


Fig - 11 Distribution of Gender in Experimental Group



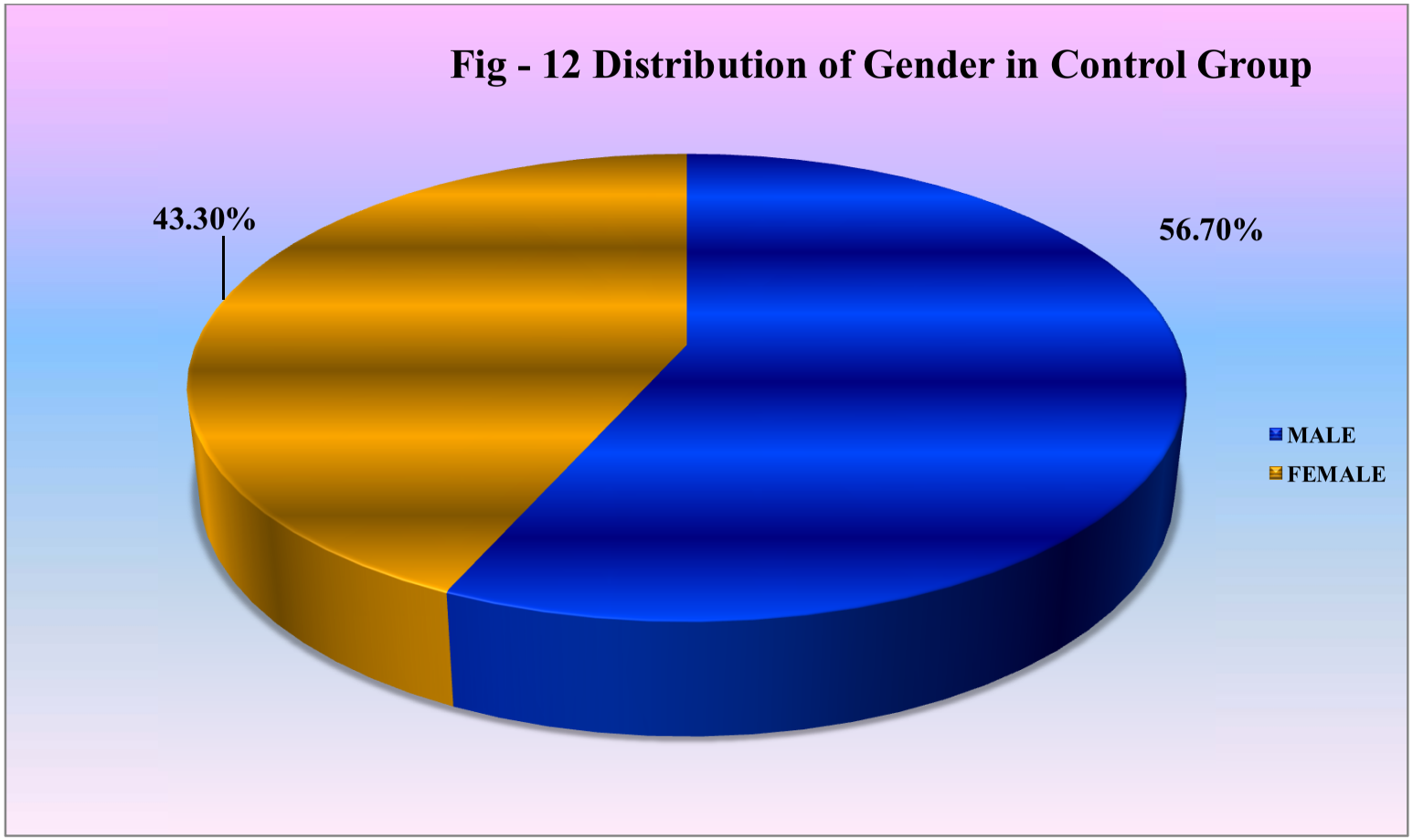


Fig - 12 Distribution of Gender in Control Group
43.30%
56.70%
MALE
FEMALE

Fig -13 Distribution of Post Test Level of BioPhysiological Parameters in Experimental group

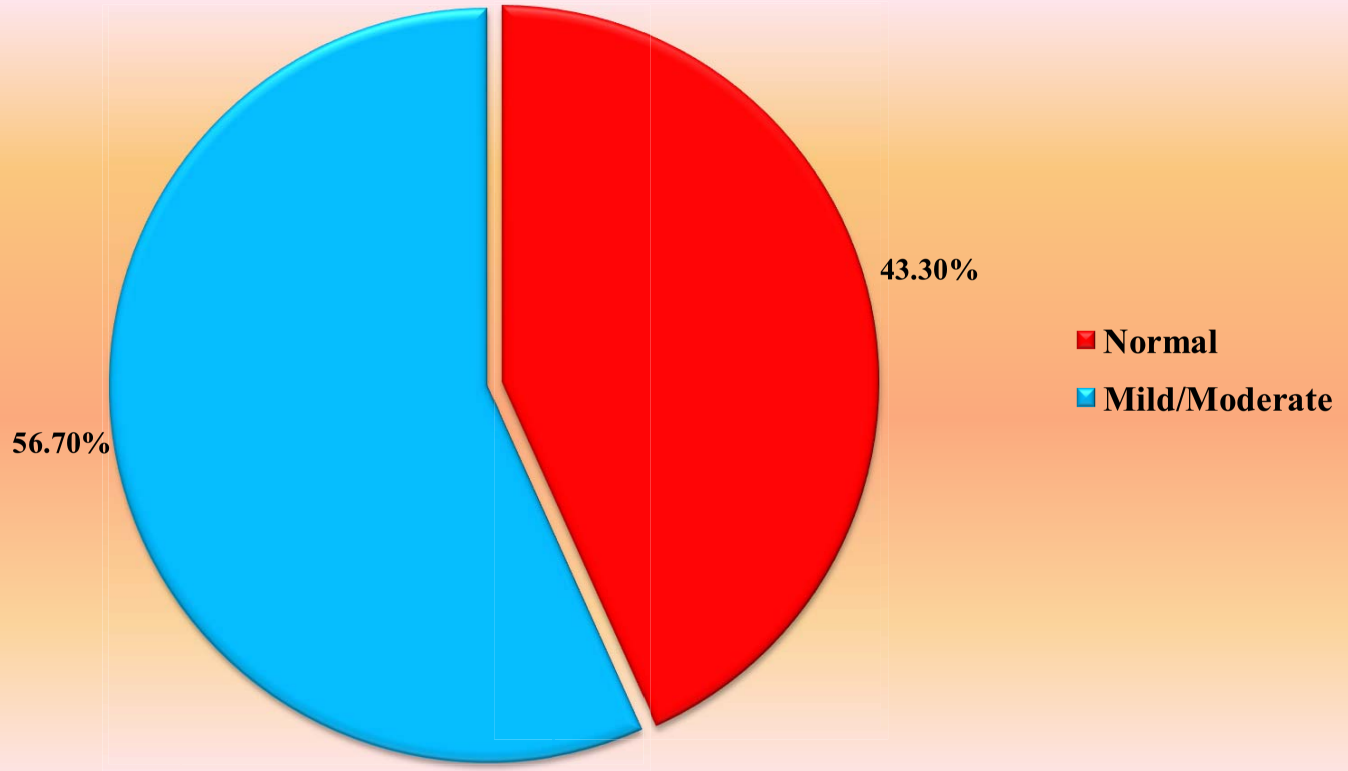
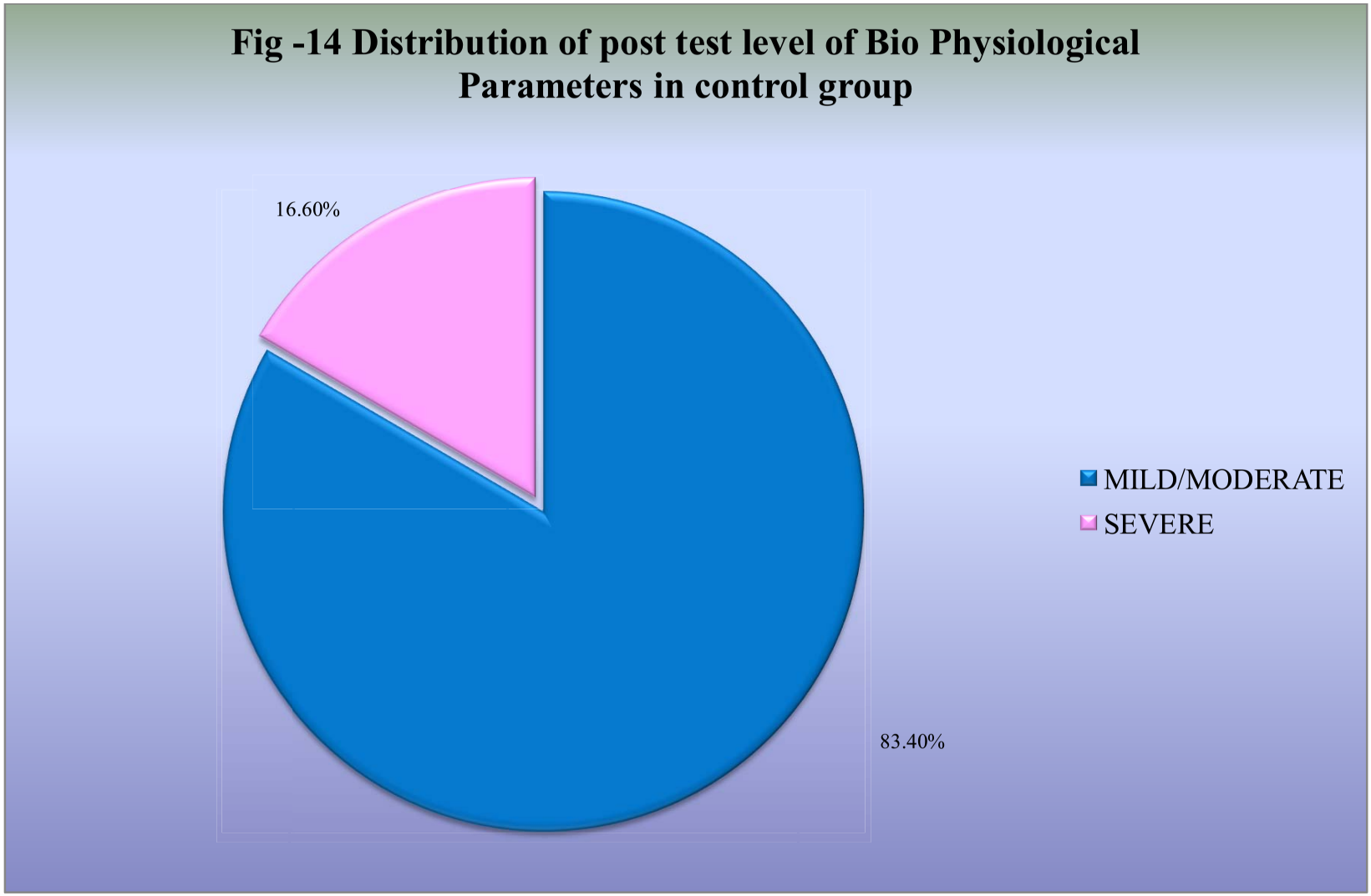


Fig -14 Distribution of post test level of Bio Physiological Parameters in control group



CHAPTER V

SUMMARY

The study was done to assess the effectiveness of consumption of warm water followed by postural drainage among age group of 6-9 years with respiratory tract infection admitted at Institute of Child Health and Hospital for Children, Chennai.

Quasi experimental design with quantitative research approach was used. Conceptual framework adopted in the present study was modified J.W Kenny's open system model. The sample size was 60. (30 in experimental group &30 in control group). The samples were selected for the study by using convenient sampling technique.

The development of the tool was based on the objectives of the study, review of literature and the opinion from the experts. The data collection was done for a period of one month from 16.7.2015 to 15.8.2015. Parents of respiratory infected schooler children were interviewed by the tool. Informed consent was obtained from the parents of all the samples. The samples were divided into two groups(30 children in experimental group and 30 children in control group). Assessing the respiratory status of the children, samples were selected based on convenient sampling technique and first 30 samples (experimental group) were assigned for consumption of warm water followed by Postural drainage and next 30 samples (control group) were given only the Postural drainage. For the Experimental intervention were given for 1 and1/2 hours twice a day (Morning and Evening) for two days and for control group Postural drainage procedure were performed for 45minutes to 1hour twice a day (Morning and Evening) for two days.(includes assessment and recording time).

On the day of admission pre assessment was done on respiratory status which includes the Clinical Parameters and Bio physiological measurement and

the score were recorded for both the groups. The post assessment was done on respiratory status on two days after the last intervention.

5.1 Major findings of the study:

With regard to the demographic variables of the children,

It shows that less than half of the proportion the age of the child in experimental group (40%) and in control group (33.3%) belongs to the age between 6 – 6.5years.

The sex of the child (66.7%) in experimental group and (56.7%) in control group were male children and less than half of the proportion (33,3%) in experimental group and (43.3%) in control group were female child.

Immunization status of the children of which majority (86.7%) in the experimental group and (60.00%) in control group received up to date immunization.

The weight of the children in experimental group is (66.70%) and in the control group is found to be of (60.00%)

History of previous episodes of infection was in equal proportion (53.3%) in experimental group and (50.0%) in control group had 2 – 3 episodes of infection.

Frequency of hospitalization was of (40%) in both experimental group and control group who visited hospital for the first time and majority (40.0%) in experimental group and (46.7%) in control group visited for 2 – 3 time for the same illness.

The duration of hospital stay for the majority was (53.3%) in control group and in (36.7%) in experimental group who stayed for less than 3 days in hospital and majority (46.7%) in experimental group and (30.0%) in control group stayed for 3 – 5 days.

Concerned with the exposure of passive smoking at home to be equal proportion experimental group is (33.30%) and in control group were not exposed to passive smoking is (66.70%).

The place of living was found to be equal proportion of (66.70%).

The family income (86.7%) in experimental group and (80.0%) in control group earned Rs. 5000 – 7000.

The researcher concluded that the consumption of warm water followed by postural drainage and percussion was more effective in improving the respiratory status among children with respiratory infection ($P<0.001$) among the experimental group.(Very Highly Significant)

The researcher concluded that the Postural drainage alone was less effective in improving the respiratory status among children with respiratory infection ($P<0.01$) among the control group.(Significant)

Consumption of warm water with postural drainage and percussion was found to be very effective in improving the respiratory status of children. The present study revealed that in experimental group there was a quick reduction in clinical parameter distress score from 11.33 to 4.17 after the administration of warm water with postural drainage and percussion. Concerned with the Bio-physiological parameters, in pretest none of the children had shown normal bio-physiological parameter score, 12 (40.00%) showed sever and 18(60.00%) showed moderate BPM. In post test 13 (43.30.00%) of children moved to moderate, 17(56.70%) of children moved to mild/moderate from severely altered bio-physiological parameters. This reduction is statistically significant ($P<0.001$***). Thus consumption of warm water followed by postural drainage was more effective than postural drainage alone for children with respiratory disorders. In this present study children with normal weight, less duration of hospital stay during illness had better improvement in respiratory status and were statistically significant both in experimental ($P<0.001$***) (very highly significant)and control group ($P<0.01$**Highly significant).

CHAPTER VI

DISCUSSION

This study, is an attempt that has been made to identify the effectiveness of consumption of warm water with postural drainage and percussion on children with selected respiratory disorders. A standard semi structured questionnaire and a rating scale was used to assess the respiratory status. The sample size taken for the study was 60 with selected respiratory disorders.

This research study has been discussed based on the objectives and the following supported studies.

The demographic variables shows that less than half of the proportion the age of the child in experimental group (40%) and in control group (33.3%) belongs to the age between 6 -6.5 years. The weight of the children was found to be of equal proportion (66.70%). The duration of the hospital stay for the majority was 36.60% in control group and 36.60% in experimental group who stayed for less than 3days in hospital during illness and majority 46.7% in experimental group and 46.70% in control group stayed for 3 – 5days. Concerned with the exposure of passive smoking at the home the majority 66.7% in experimental group and 66.70% in control group were not exposed to passive smoking. The place of living for the majority (66.7%) in experimental group and (66.70%) in control group lived in urban area.

This research study has been discussed based on the objectives and the following supported studies.

The demographic variables shows 40% of the experimental group are in the 6-6.5 age group and in control group (33.3%) belongs to the age between 6-6.5 years. The percentage of children in the 18-20 kg in experimental group was 66.7 and it was found to be 60% in the control group. The duration of the hospital stay of 3 days for both experimental and control group was 36.6% and it was 3-5 days in 46.7% of experimental and control group ,with regard to the

exposure of passive smoking at home ,in both experimental and control group, 33.3% were exposed to passive smoking and 66.7% were not exposed to passive smoking. With regard to the place of living ,in both experimental and control group, 66.7% lived in urban area and 33.3% lived in suburban areas. With regard to the monthly income in both experimental and control group, 86.7% were in Rs.5000-7000 income group.

DISCUSSION BASED ON THE OBJECTIVES

1. To assess the respiratory status of the children before postural drainage in experimental and Control group.

In the Pretest, on day 1 morning, none of experimental and control group were in the respiratory rate of 24-30 and 86.7% of experimental group and 90% of control group had respiratory rate>44 and it is not found to be statistically significant. On day 1evening in the pretest 86.7% of experimental group and 90% of control group were with respiratory rate>44 and it is not found to be significant. On day 2 morning in the pretest 33.3% of experimental group had respiratory rate of 30-44 compared to 13.3% of control group with the same respiratory rate and 66.7% of experimental group had respiratory rate>44 compared to 86.7% of control group in the same respiratory rate (>44)(not significant).On day 2 evening in pretest, 13.3% of experimental group had respiratory rate 24-30 and none of the control group were in 24-30 range. 53.3% of experimental group had respiratory rate of 30-44 compared to 26.7% of control group with same respiratory rate and there was a considerable reduction in proportion of patients in the respiratory rate>44 with 33.4% in experimental group compared to 73.3% in control group and it is found to be highly significant.

It is seen that there was no difference between experimental and control group till second day morning pretest and from second day morning post test , there is a significant to highly significant difference between experiment and control group with regard to respiratory rate.

2. To assess the respiratory status of children after the Postural drainage in Experimental andControl group.

On day 1 morning in the post test, 86.7% of experimental group and 90% of the control group were in the respiratory rate>44 (not significant). On day 1 evening in the post test, 86.7% of experimental group had respiratory rate>44 compared to 90% of the control group with the same respiratory rate.(not significant).on day 2 morning, in the post test, the proportion of patients in the experimental group moved to respiratory rate ranging from 30-44 with 56.7% and with only 23.3% in control group were with RR of 30-44 and 76.7%of control group were with RR>44 and it is found to be highly significant. On day 2 evening, only 6.7% of patients in experimental group were with RR>44 compared to 63.3% of control group with the RR>44 and it is found to be very highly significant($p<0.001$).

It is seen that there was no difference between experimental and control group till second day morning pretest and from second day morning post test , there is a significant to highly significant difference between experiment and control group with regard to Respiratory rate.

3. To determine the effectiveness of Postural drainage followed by consumption of warm water in experimental group.

The study revealed that on an average there was reduction in the Respiratory rate from 40 to32 with 40(26-48) Median(Range) in the pre test and with 32(26-46) Median (Range) after administration of Postural drainage followed by consumption of warm water in the experimental group. Due to administration of Postural drainage followed by consumption of warm water , on an average, the respiratory rate reduced considerably from 40 to 32 with a median difference of 8 and it is found to be very highly significant.($p<0.001$).

On an average, a decrease in the respiratory rate is seen with regard to pretest and post test .A decrease in Respiratory rate is evident by postural

drainage followed by consumption of warm water .This reduction is very highly significant. Statistical test applied is Wilcoxon Signed rank test.

4. To compare the respiratory status of children between experimental and control group.

With regard to the bio physiological parameters among experimental and control group, in the pretest,60% of experimental group and 50% of control group were in severe score .(not significant).

In post test, 56.7% of experimental group were in mild/moderate score compared to 83.4% of control group in mild/moderate score and none of the experimental group were in severe score compared to 16.6% of control group in severe score and it is found to be very highly significant($p<0.001$) Thus In pretest there is no difference between experimental and control group children. In post test there is a highly significant difference between experimental and control group.

5. To find the association of the post test level of respiratory status with selected demographic variables in experimental and control group.

With regard to post test level of respiratory status, 76.7% of experimental group have symmetrical chest movements compared to control group where only 43.3% of them have symmetrical chest movements and it is found to be highly significant.($p<0.01$)

70% of experimental group have difficulty in breathing compared to 73.3% of control group having noisy breathing and it is found to be highly significant($p<0.01$)

50% of experimental group have no chest retraction and 50% with intermittent retraction compared to 46.7% of control group with intermittent chest retraction and 40% with continuous chest retraction and it is found to be highly significant($p<0.01$).

While comparing breathing sounds in experimental group and control group, it is found that 66.7% of experimental group have wheezing sounds and 16.7% with normal breathing sounds whereas 73.3% of control group have severe wheezing sounds and 26.7% with wheezing sounds and it is found to be highly significant($p<0.01$).

It is found that76.7% of experimental group have no sputum compared to 33.3% of control group without sputum and none of the experimental group have thick purulent sputum compared to 40% of control group having thick purulent sputum and it is found to be highly significant($p<0.01$).

It is found that 73.3% of experimental group have nasal breathing compared to only 10% of control group having nasal breathing.,43.3% with mouth breathing and 46.7% have strenuous muscle breathing and none of experimental group have strenuous muscles breathing and it is found to be highly significant.($p<0.01$)

Thus it shows that in the post test, with regard to the clinical parameters, there was a Statistically significant difference between experimental and control group except for the clinical parameters of Nasal flaring, Air entry, cough and child activity. Chi-square test/YATES Corrected Chi-square test and Fisher Exact test applied as per the data.

CHAPTER – VII
CONCLUSION AND RECOMMENDATIONS

This chapter deals with the summary, conclusion, implication, recommendation and limitation of the study.

7.1 Implications of the study

The investigator had drawn the following implication for the study, which were vital concern in the field of nursing practice, nursing education, nursing administration and nursing research.

Implication for nursing practice

- Respiratory diseases are common among children and it is curable it is diagnosed early and treated properly. As a member of the health team, nurses play an important role in improving the respiratory status among children with respiratory diseases.
- Basic nursing practice is important to develop their knowledge and skills in performing effective postural drainage and percussion.
- Nurses should create awareness among parents and children through health education about home remedies and simple intervention for respiratory illness.

Implication for nursing education

- The study has clearly proved that the consumption of warm water followed by postural drainage postural was very effective in children with respiratory disorders.
- Nursing students must be posted in pulmonology wards for demonstration of postural drainage and percussion techniques on children with respiratory disorders.
- Arrange for an inservice education program and staff development program on demonstration of the postural drainage and percussion techniques for the staff nurses and nursing students.

Implication for nursing administration

- ❖ The administrator should give permission to do the various experimental study to find out the efficiency of the procedure.
- ❖ The nurse administrator should prepare the standard protocol for postural drainage and percussion techniques.
- ❖ Pamphlets, video and live demonstrations regarding postural drainage and percussion techniques should be exhibited to the parents of children with chronic respiratory illness like cystic fibrosis.

Implication for nursing research:

- ➢ Research is a never ending process of acquiring knowledge that may enhance a result on its completion. Nurses need to attend more conferences to acquire inquisitive knowledge.
- ➢ Nursing researcher can encourage clinical nurse to apply the research findings in their daily nursing care activities and can bring about new techniques in relieving secretions effectively for children with respiratory diseases.
- ➢ The study also brings about the fact that more studies needs to be conducted by comparing the Postural drainage with other procedures for clearing secretions like breathing exercises, flutter therapy etc.,

7.2 Limitation

Initially the children were not co-operative for postural drainage and percussion techniques

7.3 Recommendations for the further study

The investigator recommend the nurses and administrator to provide pamphlets and demonstrate the postural drainage and percussion techniques on children with respiratory diseases in pulmonology ward, general wards and outpatient department.

The study recommends the following suggestions for further research.

- Similar study can be done by other techniques of clearing secretions like breathing exercises with large samples.
- Similar study can be conducted in pediatric intensive care unit as a true experimental study.
- A descriptive study can be conducted to identify the factors that influence the respiratory status after consumption of warm water, postural drainage and percussion and can be undertaken.
- Similar study can be conducted for school age children with respiratory diseases.
- The same study can be done in different settings.

Conclusion

The study revealed that postural drainage and percussion along with consumption of warm water was very effective than Postural drainage alone on day 2 evening (P=0.001***). Thus postural drainage and percussion along with warm water was more effective than Postural drainage alone in improving the respiratory status among children with selected respiratory diseases (P=0.001***)

An improvement in the respiratory status and thereby decreasing further complication could be achieved by consumption of warm waterwith postural drainage and percussion among children with respiratory infection. Thus children with respiratory disorders will benefit from the intervention in improving their respiratory status by clearing the lung secretions thereby enhancing speedy recovery and reducing the duration of hospital stay. There was a moderate significant association with their normal weight and less duration of hospital stay during illness in the improvement of the respiratory status.

BIBLIOGRAPHY

1. Adamso F (1987), Essential pediatrics in nursing, Second edition, Edinburg Churchill Livingstone publishers.
2. Basavanthappa B.T (2009), Nursing research, Fourth edition, New delhi: Jaypee brothers.
3. Basavanthappa B.T (2009), Nursing theories, Second edition, New delhi: Jaypee brothers.
4. Behraman, Richard K (2009), Nelson textbook of pediatrics, Nineteenth edition, Philadelphia: W.B Saunders company.
5. Behraman, E.R (2000), Textbook of pediatrics, Fifteenth edition, Prism books private limited, Bangalore.
6. BowedonM (1998), Children and their families, First edition, B. Saunders company, Philadelphia.
7. Corson J (1995), Progressive exercise therapy in rehabilisation, Third edition, New York: John weight & sons.
8. David T.J, (2001), Recent advances in pediatrics, Second edition, Churchill Livingstone, London.
9. Denis F (1999), Nursing research principles and methods, Sixth edition, Lippincott company, Philadelphia.
10. Elizabeth. K.E, (2000), Fundamentals of pediatrics, First edition, Publishing company, Hyderabad.
11. Fawcett Jacquiline, (1989), Analysis and evaluation of conceptual model of nursing, First edition. F.A.Davis publishers.
12. Gardener D.M (1970), The principles of exercise therapy, Third edition, Philadelphia, Bella and sons.
13. Ghai, O.P, (2009), Essential pediatrics, Seventh edition, New delhi: CBS Publishers.
14. Gregory A.Baldwin (2001), Handbook of pediatric Emergencies, Third edition, Lippincott Williams and Wilkins, Philadelphia.

15. Gupta S (1998), The short textbook of pediatrics, Ninth edition, Jaypee Brothers, New Delhi.
16. Gupta S.P (1991),Statistical methods, Third edition, New Delhi: Sultan chand.
17. Kothari, C.R (1988), Research methodology – Methods and Techniques. First edition, Wheiy eastern Ltd.
18. Mahajan B.K. (1991), Methods of Biostatistics, First edition, New Delhi: J.S.Brothers.
19. Marlow Dorothy R, Barbara, (1998), Textbook of pediatric nursing, Sixth edition. Philadelphia: Saunders.
20. McMilan J.H., Schumacher, (1989), Introduction to research in education, New York: Harper Collies.
21. Nancy Burns et al, (2005), The practice of nursing research, Fifth edition, Philadelphia: Elsevier publications.
22. Parthasarathy (2009), I A P Textbook of pediatrics. Seventh edition..New Delhi: Orient Longmann.
23. ParulDatta (2009), Textbook of pediatric nursing, Second edition, New Delhi: Jaypee publications.
24. Polit and Hungler (2009), Nursing research principles and methods. Eighth edition, Philadelphia: J.P.Lippincott.
25. Robert Kennath (1979), Manual of chest problems in pediatrics, First edition, Boston Little Brown Company.
26. Robinson M.J.Robertson D.M, (1996), Practical pediatrics, Third edition, Churchill Livingstone, London.
27. Sundar Rao (1999), Textbook of an introduction to biostatistics, First edition, Vigal Publishers.
28. Thamen O.P. (1984), Textbook of pediatrics, Second edition, New Delhi, Megraw Hill Publishing Company.
29. Tom Lissaner, Graham Clayden, (1998), Illustrated textbook of pediatrics, Mosby publications, London.

30. Viswanathan, (2009), Achar's textbook of pediatrics, Fifth edition. Bombay: Orient Longmann.
31. Whaley (1979), Essentials of pediatric nursing, Second edition. St.Louis: Mosby publications.

ARTICLES:

1. Health benefit article (Cough)(2015)

2. Heals Nasal & Throat congestion, MARCH 25, 2015(13 Amazing benefits of HOT WATER)

3. ShomaliaIssam-contributor (August 5, 2014) Article: Soothes sore throats.

4. BhavyajyotiChilukoti March 19, 2015 (11 surprising health benefits of warm water)

5.Diet Health Club (January, 2014)Article.

6. Dr.Faris Al Hajri,Miracles From Drinking Hot Water(2015)

7. P.R. Newswire [new york] 10 july 2008. New book reveals warm water benefits for heart, lungs and mind: 'hot water & healthy living' reviews scientific findings about warm-water

8. Hongrattana G. et al., Acute hemodynamic responses to 30^0 head down postural drainage in stable, ventilator trauma patients(2000)

9. W. P. Wong, J. D. Paratz,et al., Y. R. BurnsJournal of Applied Physiology Published 1 September 2003 .

10. Rodrigo A S Gonçalves,et al., Evaluation of physiological parameters before and after respiratory physiotherapy in newborns with acute viral bronchiolitis(2014).

JOURNALS

1. J. Mortensen, M. Falk et al., A study was conducted in Lung disease & Respiratory Center, India,(2013)
2. F.A. Dolovich MB, Montgomery JM et al., American review of journal article (1999)
3. M. P. Murry, J. L. Pentland, et al., A study was conducted in a European respiratory society hospital, A randomized crossover trial of chest physiotherapy in non-cystic fibrosis Bronchiectasis(2009)
4. K.R. Stiller et al., Review article, chest physiotherapy for medical patients,Royal Adelaide Hospital(1990)
5. A. E. Moore,M.D. The treatment of postoperative pulmonary atelectasis, Article(1999)
6. A.S. Pelkonen, K Malmstrom, (2009), Budesonide improves decreased airway conductance in infants with respiratory symptoms, Archives disease of childhood; 94 (7):536-541.
7. Anita Sharma and AravindMadaan (2007), Nebulized salbutamol vs salbutamol and ipratropium combination in asthma, Indian Journal of Pediatrics Volume 71, Number 2, 121-124.
8. Atonigbinde, Raadedoyin (2007), effect of postural drainage and percussion positions on cardiovascular and respiratory parameters, Nigerian journal of medical rehabilitation vol.12, no. 1 & 2, (Issue No.20)
9. Awasthi S, Glick HA, Fletcher RH, (1996), Effect of cooking fuels on respiratory diseases in pre-school children in Lucknow, India. American Journal of Tropical Medical Hygiene. Jul;55(1):48-51.
10. Berman S (1991), Epidemiology of acute respiratory infections in children of developing countries, Reviews of infectious diseases, May-Jun;13Suppl 6:S454-62.
11. Besbes – Ouanes L, NouiraSc (2000), Continuous versus intermittent nebulization of salbutamol in acute severe asthma, Annals of Emergency Medicine, Sep;36(3):198-203.

12. Bryce J, Boschi-pino C Lancet (2005), WHO estimates of the causes of death in children, Mar 26-Apr1;365(9465):1147-52.
13. C o'callaghan, A.D.Milner, et al (1988), Nebulised salbutamol does have a protective effect on airways in children under 1 year old, Archives of disease in Childhood, 63, 497-483.
14. C.Paludo, L Zhang, C.S.Lincho (2008), Chest physical therapy for children hospitalized with acute pneumonia, Thorax;63(9):791-794.
15. Colin Wallis, Ammani Prasad (1999), who needs chest physiotherapy?Moving from anecdote to evidence, Archives of disease in Childhood 80(4):393-397.
16. Conway SP, Watson A (1997), Nebulised bronchodilators, corticosteroidsAnd rnDnase in adult patients with cystic fibrosis, Thorax;52:564-569.
17. Craven D, Kercsmar CM, Myers TR, (2001)., Ipratropium bromide plus Nebulized albuterol for the treatment of hospitalized children with acute Asthma. Journal of pediatrics, Jan;138(1):51-58.
18. Denny FW (1995), The clinical impact of human respiratory virus Infections, American Journal of Respiratory and critical care Medicine. Oct; 152 (4 pt 2) : S4-12.
19. DraganaNikic (1999), Air pollution and respiratory symptoms in PreSchool children, the scientific journal factauniversitatis, Volume 1, No. 4. 65-71.
20. Joseph V. Dobson, MD, (1998), The use of albuterol in Hospitalized Infants with Bronchiolitis. Vol.101 No.3 pp. 361-368.
21. Kellett, J.Redfern, R. et al., (2005), Evaluation of nebulised hypertonic Saline as an adjunct to physiotherapy in patients with stable bronchiectasis,Respiratory Medicine, 99,27-31.
22. Lilian Rubilar, MD, I Jose' (2000), Randomized Trial of Salbutamol viaMetered-Dose Inhaler with Spacer Versus Nebulizer for acute wheezing inChildren Less Than 2 years of age, Journal of pediatric Pulmonology 29:264-269.

23. Nicola Principi, Susanna Esposito (2011), Management of severe Community.acquired Pneumonia of children in developing and Developed countries, Thorax; 66(9):815-822
24. O'Brien KL, Wolfson LJ., et al (2009), Burden of disease caused by Streptococcus pneumonia in children younger than 5 years, 12;374(9693)893-902.
25. Padhi, B.K. and Padhy, P.K. (2008), Domestic fuels, Indoor air Pollution, andChildren's health, Annals of the New York Academy of Sciences, 1140:209-217.
26. Philip P. Sutton (1988), Chest physiotherapy-time for reappraisal British Journal of Diseases of the chest, Volume 82, Pages 127-137.
27. Pragti Chhabra, Geethanjali Sharma (2008), Prevalence of Respiratory Disease and associated factors in an urban area of Delhi, Indian JournalOf Community Medicine, 33 (4):229.
28. Rietveld S, Kolk AM (1998), The influence of respiratory sounds on Breathlessness in children with asthma: a symptom – perception approach.Health Psychol. 7 Nov; 16(6) : 547-53.
29. RujipatSamransamruajkit, Terry W. Chin (2003), Possible beneficial effect Of chest physical therapy in hospitalized asthmatic children. Pediatric Asthma,Allergy & Immunology 16 (4):295-303.
30. ShallyAwasthi and Vinod Kumar Pande (1997) ., Seasonal Pattern of Morbidities in pre-school slum children in Lucknow, Indian Pediatrics Volume34 – November.
31. Shibi Chakra Varthy K., Raj b. Singh (2002), Prevalence of asthma in urbanAnd rural children in Tamilnadu, The National Medical journal of India,Vol. 15; no.5.
32. Sunalene G. Devadason (2009), Aerosol delivery of nebulised budesonideIn young children with asthma, Respiratory Medicine Volume 103(11) 1738 – 1745.
33. Sunil Saharan & Rakesh Lodha (2010), Management of status asthmaticusIn children, Indian Journal of Pediatrics 77: 1417-1423

34. Turner, D.J., Landau, L.I. and Lesouef, P.N.(1993), The effect of age onBronchodilator responsiveness, Pediatric Pulmonology, Volume 15(2), 98-104.
35. VR Agnihothram, et al (2005), Respiratory disease burden in rural India, The Internet journal of epidemiology, Volume 2 Number 25:367.
36. WgCdr BM John, GpCapt D Singh (2010), Comparison of NebulisedSalbutamol and L-epinephrine in First Time Wheezy Children, MJAFL,Vol. 66, No. 1.
37. Y. Nuhoglul, E. (2005), Acute effect of Nebulised budesonide in asthmaticChildren, Journal of Invest Allergol Clinical Immunology; Vol. 15(3):197-200

NET REFERENCES:

1) www.pubmed.com
2) www.ispub.com
3) www.wikepedia.com
4) www.google.com
5) www.cochranereviews.com
6) www.medscape.com
7) www.sciencedirect.com
8) www.med.help.org
9) www.bmjjournals.com
10) www.healthsquare.com
11)Search Proquest.com

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI-3

EC Reg No.ECR/270/Inst./TN/2013
Telephone No. 044 25305301
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CERTIFICATE OF APPROVAL

To
Mrs. G. RUPAVATHY
M.Sc., (Nursing)
College of Nursing
Madras Medical College,
Chennai – 600 003.

Dear Mrs. G. RUPAVATHY ,

The Institutional Ethics Committee has considered your request and approved your study titled **A STUDY TO ASSESS THE EFFECTIVENESS OF CONSUMPTION OF WARM WATER FOLLOWED BY POSTURAL DRAINAGE AMONG AGE GROUP OF 6-9 YEARS WITH RESPIRATORY TRACT INFECTION ADMITTED AT INSTITUTE OF CHILD HEALTH AND HOSPITAL FOR CHILDREN EGMORE.** **No.11102014.**

The following members of Ethics Committee were present in the meeting held on 21.10.2014 conducted at Madras Medical College, Chennai-3.

1. Dr.C.Rajendran, M.D.,	: Chairperson
2. Dr.R.Vimala, M.D., Dean, MMC, Ch-3	: Deputy Chairperson
3. Prof.B.Kalaiselvi, M.D., Vice-Principal, MMC, Ch-3	: Member Secretary
4. Prof.R.Nandhini, M.D., Inst.of Pharmacology, MMC	: Member
5. Prof.K.Ramadevi, Director i/c, Inst.of Biochemistry, MMC	: Member
6. Prof.Saraswathy, M.D., Director, Pathology, MMC, Ch-3	: Member
7. Prof.S.G.Sivachidambaram, M.D., Director i/c, Inst.of Internal Medicine, MMC	: Member
8. Dr.Raghumani, M.S., Professor of Surgery, MMC	: Member
9. Thiru S.Rameshkumar, Administrative Officer	: Lay Person
10. Thiru S.Govindasamy, B.A., B.L.,	: Lawyer
11. Tmt.Arnold Saulina, M.A., MSW.,	: Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

31/10/14

Member Secretary, Ethics Committee

From

Mrs.G.Rupavathy
M.Sc. (N) II year,
College of Nursing,
Madras Medical College,
Chennai - 600003.

To

The Director,
Institute of Child Health and Hospital for Children,
Egmore, Chennai-8.

Through Proper Channel

Respected Madam,

Sub: Requesting for permission to conduct a Nursing Research Study-regarding

I G. Rupavathy M.sc Nursing II year, College of Nursing, Madras Medical College, request you to kindly grant me permission to conduct nursing research study on the topic **'A STUDY TO ASSESS THE EFFECTIVENESS OF CONSUMPTION OF WARM WATER FOLLOWED BY POSTURAL DRAINAGE AMONG AGE GROUP OF 6-9 YEARS WITH RESPIRATORY TRACT INFECTION ADMITTED AT INSTITUTE OF CHILD HEALTH AND HOSPITAL FOR CHILDREN EGMORE'.** As partial fulfilment of dissertation on **POSTURAL DRAINAGE** study for the degree of Master of Science in Nursing.

I assure you that it will not interfere with the routine activities of the study settings as well as keep confidentiality and anonymity of each children.

Thanking you

Place: CHENNAI - 3

Time: 1.7.15

Forwarded.

Senior Civil Surgeon
Institute of Child Health and
Hospital for Children
Egmore, Chennai-600 008

Director and Superintendent
Institute of Child Health and
Hospital for Children
Egmore, Chennai - 600 008

Yours obediently

(G.RUPAVATHY)

PERMISSION LETTER

From

Ms. G.Rupavathy
M.Sc(Nursing) II year,
College of Nursing,
Madras Medical College,
Chennai-3.

To

Madha College of Nursing,
Kundrathur
Chennai -69.

Through Proper Channel,
Respected Sir/Madam,

Sub: Requisition for expert opinion on suggestion for content validity of the tools.

I, **Ms. G.Rupavathy**, studying M.Sc.Nursing II year, College of nursing, Madras Medical college Chennai-03 affiliated to Dr.M.G.R Medical University, Chennai. As a partial fulfilment of the requirement in the M.Sc Nursing Programme, I have to complete my dissertation and the topic I have selected is titled, **"A STUDY TO ASSESS THE EFFECTIVENESS OF CONSUMPTION OF WARM WATER FOLLOWED BY POSTURAL DRAINAGE AMONG AGE GROUP OF 6-9 YEARS WITH RESPIRATORY TRACT INFECTION ADMITTED AT INSTITUTE OF CHILD HEALTH AND HOSPITAL FOR CHILDREN EGMORE"** Herewith, I have enclosed the tool for content validity and for your expert opinion and valuable suggestions.

14/7/15

Thanking you,

Yours sincerely,

(G.Rupavathy)

Enclosures

1. Statement and objectives of the study
2. Blue print of the tools
3. Content validity certificate

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that a tool prepared by **Ms.Rupavathy**, studying M.Sc.Nursing II year, College of Nursing, Madras Medical College, undertaking a Research study on **"A STUDY TO ASSESS THE EFFECTIVENESS OF CONSUMPTION OF WARM WATER FOLLOWED BY POSTURAL DRAINAGE AMONG AGE GROUP OF 6-9 YEARS WITH RESPIRATORY TRACT INFECTION ADMITTED AT INSTITUTE OF CHILD HEALTH AND HOSPITAL FOR CHILDREN EGMORE"**, has been validated by me and is found to be valid upto date and she can proceed with this tool to conduct the main study.

S. Elangovan
7/7/15
SIGNATURE WITH SEAL

Name : Dr S. ELILARASI MD, DCH,

Designation : PROFESSOR

Date : 7/7/15

Place : Chennai

Senior Civil Surgeon
Institute of Child Health and
Hospital for Children
Egmore, Chennai-600 008

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that a tool prepared by **Ms.Rupavathy**, studying M.Sc.Nursing II year, College of Nursing, Madras Medical College, undertaking a Research study on **"A STUDY TO ASSESS THE EFFECTIVENESS OF CONSUMPTION OF WARM WATER FOLLOWED BY POSTURAL DRAINAGE AMONG AGE GROUP OF 6-9 YEARS WITH RESPIRATORY TRACT INFECTION ADMITTED AT INSTITUTE OF CHILD HEALTH AND HOSPITAL FOR CHILDREN EGMORE",** has been validated by me and is found to be valid upto date and she can proceed with this tool to conduct the main study.

SIGNATURE WITH SEAL

MADHA COLLEGE OF NURSING
15 JUL 2015
CHENNAI - 600 069

Name : Mrs. Mahiba Janice. J

Designation : Lecturer

Date : 15.07.15

Place : Chennai - 69.

APPENDIX - 6

INFORMED CONSENT FORM

Title of the study :" A study to assess the effectiveness of consumption of warm water followed by postural drainage among children age group of 6-9 years with Respiratory Tract Infection admitted in Institute of child health & Hospital for children Egmore, Chennai 8"

Sample no :

Name of the Participant:

Name of the Principal Investigator : **Rupavathy.G.**

Whether the participant's consent was asked : Yes / No

[If the answer to the above question is yes, write the following phrase:

You agree with the manner to participate in the study].

[If answer to the above question No, give reason(s):

Name and Signature of / thumb impression of the Participant/Parent/Guardian

Name _____ Signature_____

Date_____

Name and Signature of the investigator or his representative obtaining consent :

Name _____ Signature_____ Date_____

ஆராய்ச்சி ஒப்புதல் கடிதம்

ஆராய்ச்சிதலைப்பு : மூச்சு குழல் சம்பந்தமான தொற்று நோய்க்கு உட்பட்ட 6 முதல் 9 வரையிலான குழந்தைகளுக்கு மித சூடான தண்ணீர் கொடுத்து அதைத் தொடர்ந்து முன்பக்க வடிகால் பயிற்சி முறையின் திறனைப்பற்றி அரசு குழந்தைகள் நல மருத்துவமனையில் ஓர் ஆய்வு.

ஆய்வாளர் பெயர் :

பங்கேற்பாளர் பெயர் :

தேதி :

வயது/பால் :

- ஆய்வாளர் மேற்கொள்ளும் ஆராய்ச்சியில் **எனது** குழந்தை பங்கேற்க யாருடைய கட்டாயமுமின்றி முழுமனதுடனும் சுயநினைவுடனும் சம்மதிக்கிறேன்.
- ஆய்வாளர் மேற்கொள்ளபோகும் பரிசோதனைகளை மிக தெளிவாக விளக்கிக்கூறினார்.
- எனக்கு விருப்பமில்லாத பட்சத்தில் ஆராய்ச்சியிலிருந்து எந்நேரமும் **எனது** குழந்தை விலகலாம் என்பதையும் ஆய்வாளர் மூலம்அறிந்து கொண்டேன்.
- இந்த ஆராய்ச்சி ஒப்புதல் கடிதத்தில் உள்ள விவரங்களை நன்கு புரிந்துகொண்டேன். எனது உரிமைகள் மற்றும் கடமைகள் ஆராய்ச்சியாளர் மூலம்விளக்கபட்டது.
- நான் ஆராய்ச்சியாளருடன் ஒத்துழைக்க சம்மதிக்கிறேன். **எனது** குழந்தைக்கு ஏதேனும் உடல்நலகுறைவு ஏற்பட்டால் ஆராய்ச்சியாளரிடம் தெரிவிப்பேன்.
- **எனது** குழந்தை வேறு எந்த ஆராய்ச்**சியி**லும் தற்சமயம் இடம்பெறவில்லை என்பதை தெரிவித்துகொள்கிறேன்.
- இந்த ஆராய்ச்சியின் தகவல்களை வெளியிட சம்மதிக்கிறேன். அப்படி வெளியிடும்போது **எனது** குழந்தை**யின்** அடையாளம் வெளிவராது என்பதை அறிவேன்.
- எனக்கு இந்த ஒப்புதல் கடிதத்தின் நகல் கொடுக்கபட்டது.

ஆய்வாளர் கையொப்பம் / பங்கேற்பாளர் கையொப்பம்

தேதி:

ஆய்வு தகவல் தாள்

ஆய்வு தலைப்பு:

மூச்சு குழல் சம்பந்தமான தொற்று நோய்க்கு உட்பட்ட 6 முதல் 9 வரையிலான குழந்தைகளுக்கு மித சூடான தண்ணீர் கொடுத்து அதைத் தொடர்ந்து முன்பக்க வடிகால் பயிற்சி முறையின் திறனைப்பற்றி அரசு குழந்தைகள் நல மருத்துவமனையில் ஓர் ஆய்வு.

ஆய்வாளர் பெயர் : ரூபாவதி. கோ

பங்கேற்பாளர் பெயர் :

தேதி :

வயது / பால் :

இந்த ஆய்வு அரசு குழந்தைகள் நல மருத்துவமனையில் நடைபெற உள்ளது. நீங்கள் இந்த ஆய்வில் பங்கேற்க நான் விரும்புகிறேன். இதிலுள்ள தகவலின் அடிப்படையில் இந்த ஆய்வில் பங்கேற்பதா அல்லது வேண்டாமா என்று நீங்கள் முடிவு செய்து கொள்ளலாம். உங்கள் சந்தேகங்களை எங்களிடம் கேட்டு நிவர்த்தி செய்து கொள்ளலாம்.

இந்த ஆய்வின் நோக்கம்:

மூச்சுக்குழல் சம்பந்தமான தொற்றுநோயினால் குழந்தைகள் பாதிக்கப்படுகிறார்கள். இதனை சரிபடுத்த மித சூடான தண்ணீர் கொடுத்து முன்பக்க வடிகால் பயிற்சி செய்வதன் மூலம் குழந்தைகளின் மூச்சு விடும் திறனை சரி செய்ய பயனாக உள்ளது. மூச்சுக்குழலில் அடைப்பட்டுள்ள சளி வெளிவர ஏதுவாக உள்ளது. இந்த ஆய்வுக்கு இன்ஸ்டிட்யூசனல் எத்திக்கல் கமிட்டி சம்மதம் பெற்றிருக்கிறோம்.

ஆய்வின் செயல்முறை:

மூச்சுக்குழல் சம்பந்தமான நோயினால் பாதிக்கப்பட்ட குழந்தைகளுக்கு மித சூடான தண்ணீர் கொடுத்து மற்றும் முன்பக்க வடிகால் பயிற்சி செய்தல்.

இந்த ஆய்வில் முதல் 4 வார முடிவில் குழந்தைகள் மூச்சு விடும் தன்மை, மார்பு விரிவடையும் தன்மை மற்றும் குழந்தைகளின் செயல்திறன் ஆகியவற்றை கண்டறியலாம்.

இந்த ஆய்வின் போது ஏதேனும் பக்கவிளைவு ஏற்பட்டால் உடனடியாக எங்களிடம் தெரிவிக்கவேண்டும்.

ஆய்வினால் ஏற்படும் நன்மைகள்:

இந்த ஆய்வில் கலந்து கொள்வதன் மூலம் நீங்கள் நோயின் தன்மையில் முன்னேற்றம் பெறலாம். மேலும் வரும்காலத்தில் பிற நோயாளிகளும் பயன்பெற இந்த ஆய்வு உதவியாக அமையும்.

மருத்துவ சிகிச்சையின் தகவல்கள் குறித்த விவரங்கள்:

உங்கள் மருத்துவ சிகிச்சை குறித்த தகவல்கள் ரகசியமாக பாதுகாக்கப்படும் (பெயர், மருத்துவ பரிசோதனை முடிவு, மருத்துவ ஆய்வு முடிவு) இந்த தகவல் தாளில் கையெழுத்திடுவதின் மூலம் உங்களை பற்றிய குறிப்புகளோ, எடுத்துக்கொண்ட சிகிச்சை முறையைப்பற்றியோ ஆய்வாளரோ இன்ஸ்டிட்யூசன் எத்திக்கல் கமிட்டியை சார்ந்தவர்களோ தேவைப்பட்டால் அறிந்து கொள்ளலாம் என்று சம்மதிக்கிறீர்கள். முடிவுகளை அல்லது கருத்துக்களை வெளியிடும் போதோ அல்லது ஆய்வின் போதோ தங்களது பெயரையோ அல்லது அடையாளங்களையோ வெளியிடமாட்டோம் என்பதையும் தெரிவித்துக்கொள்கிறோம்.

இந்த ஆய்வில் பங்கேற்காவிட்டாலும் நீங்கள் வழக்கமான சிகிச்சையை தொடர்ந்து பெறலாம்.

இந்த ஆய்வில் பங்கேற்பது தங்களுடைய விருப்பத்தின் பேரில் தான் இருக்கிறது. மேலும் நீங்கள் எந்நேரமும் இந்த ஆய்விலிருந்து பின் வாங்கலாம் என்பதையும் தெரிவித்துக்கொள்கிறோம்.

இந்த சிறப்பு சிகிச்சையின் முடிவுகளை ஆய்வின் போதோ அல்லது ஆய்வின் முடிவின் போதோ தங்களுக்கு அறிவிப்போம் என்பதையும் தெரிவித்துக்கொள்கிறோம்.

ஆய்வாளர் கையொப்பம் **பங்கேற்பாளர் / பாதுகாவலர் கையொப்பம்**

(ரூபாவதி. கோ)

தேதி:

CERTIFICATE OF ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation work, **'A study to assess the effectiveness of consumption of warm water followed by postural drainage among age group of 6-9 years with respiratory tract infection admitted at institute of child health and hospital for children Chennai'** done by Mrs.G.Rupavathy, II year M.Sc (Nursing) student of College of Nursing, Madras Medical College, Chennai-3 is edited for English language appropriateness by

A. JOHNSON THIRUTHUVADOSS, ENGLISH P.G. Asst.,
C.S.I Kellett H/Ss, Triplicane, Chennai-5

02/02/2016

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Date: 02-02-2016

Signature with seal

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Regd. No. 2309,
Physical Therapist,
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TO WHOMSOEVER CONCERN

This is to certify that **Mrs. G. RUPAVATHY**, M.Sc (Nursing) IInd year student underwent physiotherapy programme (Postural Drainage Training) in the above mentioned institution successfully from the period of May 15th – June 15th 2015. She had the sound knowledge regarding the Postural Drainage for both Adult and Paediatrics.

Thanking you

Yours Sincerely

S. ADAM VINNARASAN
Regd. No. 2309

S. ADAM VINNARASAN,
B.Sc., B.P.T., M.I.A.P.,
PHYSIOTHERAPIST,
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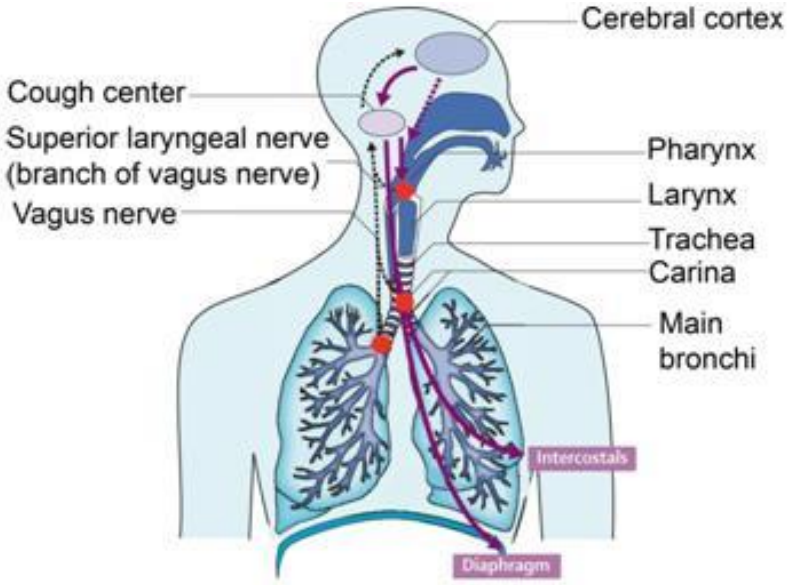
COUGH PATHWAY

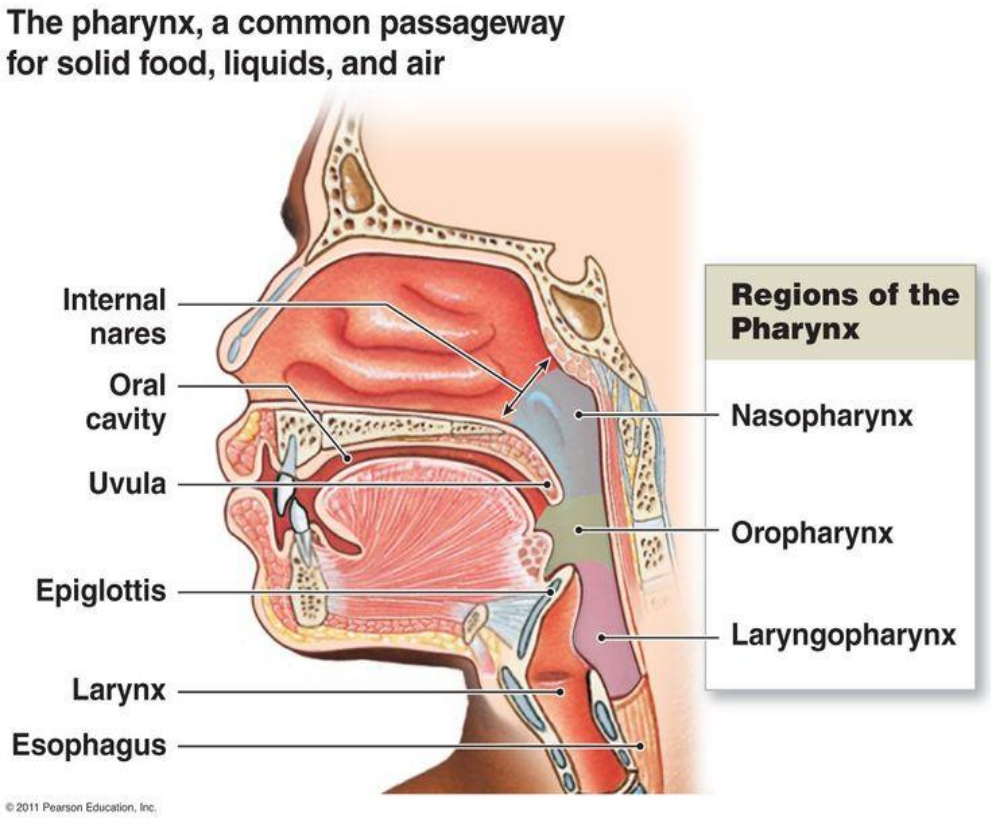
Each cough is elicited by the stimulation of the cough reflex arc. Cough receptors, which are afferent endings of the vagus nerve (cranial nerve X), are scattered in the airway mucosa and sub mucosa. Some of these receptors are mechanosensitive and some are chemosensitive. Mechanoreceptors are sensitive to touch or displacement and are located mainly in the proximal airway such as larynx and trachea. Chemoreceptors are sensitive to acid, heat, and capsaicin derivatives through the activation of type 1 vanilloid receptor (TRPV1) and are located mainly in the distal airways. The receptor locations are represented by red dots in Figure :



Cough reflex anatomy: Red dots represent the locations of the cough receptors. Black arrows represent the afferent pathway and purple arrows represent the efferent pathway. Prevalence, pathogenesis, and causes of chronic cough.

Via the vagus nerve, impulses from the cough receptors are propagated to the cough center in the medulla and nucleus tractus solitaris. Efferent impulses are generated from the cough centre and are propagated via the spinal motor (to expiratory muscles), phrenic (to the diaphragm), and vagus (to the larynx, trachea, and bronchi) nerves to the expiratory organs to produce cough.

THE ACTION OF WARM WATER IN THE AIRWAY PASSAGE



Thus when the consumption of water passes through the region of pharynx it help in soothening the cough reflux area and liquefying the secretion and expelled out through oropharynx and nasopharynx there by the symptoms of respiratory complications under desirable expectation.

POSITIONS FOR POSTURAL DRAINAGE AND PERCUSSION FOR CHILDREN
STEPS OF PROCEDURE

POSITION # 1: UPPER LOBES

Apical Segments

The child sits on the flat drainage table and leans on a pillow at a 30degree angle against the caregiver. Percuss and vibrate over the muscular area between the collarbone and the top of the shoulder blade on both the left and right sides.

POSITION # 2: UPPER LOBES

Posterior Segments

The child sits on the flat drainage table and leans forward over a folded pillow at a 30degree angle. Stand behind the child and percuss and vibrate on the upper back on the left and right sides of the chest.

POSITION # 3: UPPER LOBES

Anterior Segments

The child lies on his or her back on a flat drainage table. Percuss and vibrate between the collarbone and nipple on both the left and right sides of the chest.

POSITION # 4: LINGULA

Elevate the foot of the table 14inches (about 15degrees). The child lies head down on the right sides and rotates ¼ turn backward. A pillow may be placed behind the child (torn shoulder to hip) and the child may flex his or her knees. Percuss and vibrate just outside the left nipple area. For females with tenderness around the breasts, percuss and vibrate with the heel of hand under the armpit and fingers extended forward beneath the breasts.

POSITION # 5: MIDDLE LOBE

Elevate the foot of the table 14inches (about 15degrees). The child lies head down on the right sides and rotates ¼ turn backward. A pillow may be placed behind the child (torn shoulder to hip) and the child may flex his or her knees. Percuss and vibrate just outside the right nipple area. For females with tenderness around the breasts, percuss and vibrate with the heel of hand under the armpit and fingers extended forward beneath the breasts.

POSITION # 6: LOWER LOBES

Anterior Basal Segments

Elevate the foot of the drainage table 18inches (about 30degrees). The child lies on his or her right side with the head down and a pillow behind the beck. Percuss and vibrate over the lower ribs on the left side of the chest, as shown in the diagram. To drain the right side of the chest, the child lies on his or her left side with the head down and a pillow behind the back. Percuss and vibrate over the lower ribs on the right side of the chest.

POSITION # 7: LOWER LOBES

Posterior Basal Segments

Elevate the foot of the drainage table 18inches (about 30degrees). The child lies on his or her abdomen, head down, with a pillow under the hips. Percuss and vibrate on both the left and right sides of the spine. Do not percuss or vibrate over the spine or lower ribs.

LATERAL BASAL SEGMENTS

Position # 8&9: LOWER LOBES

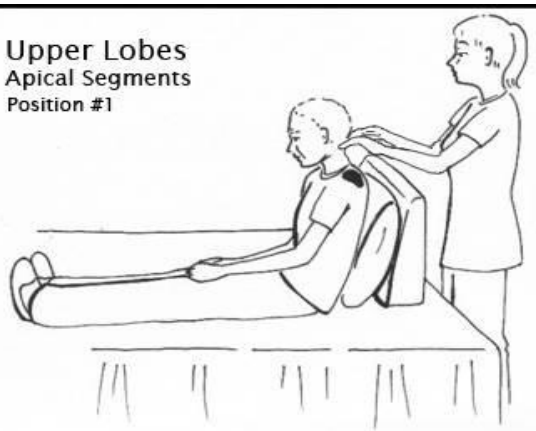
Elevate the foot of the table 18inches (about 30degrees). The child lies on his or her left side, head down and leans ¼ turn forward toward the table. The child can flex his or her upper leg over a pillow for support. Percuss and vibrate over the uppermost portion of the lower ribs to drain the right side, as shown in the diagram. To drain the left side, the child lies on his or her right side in the same position. Percuss and vibrate over the uppermost portion of the lower left ribs.

POSITION # 10: LOWER LOBES

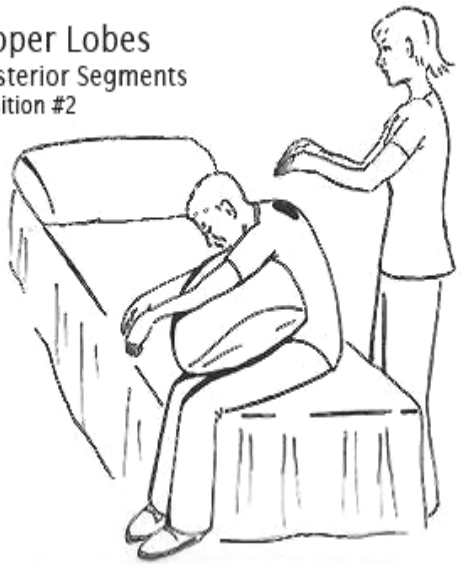
Posterior Basal Segments

The child lies on his or her abdomen on a flat drainage table with two pillows under the hips. Percuss and vibrate over the middle part of the back at the bottom of the shoulder blade on both the left and right side of the spine. Do not percuss or vibrate over the spine.

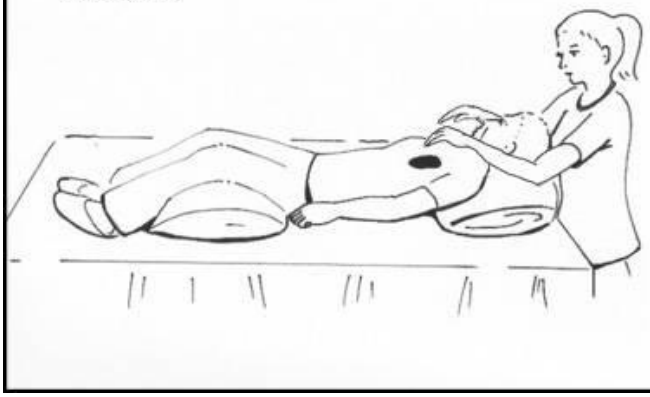
Upper Lobes
Apical Segments
Position #1

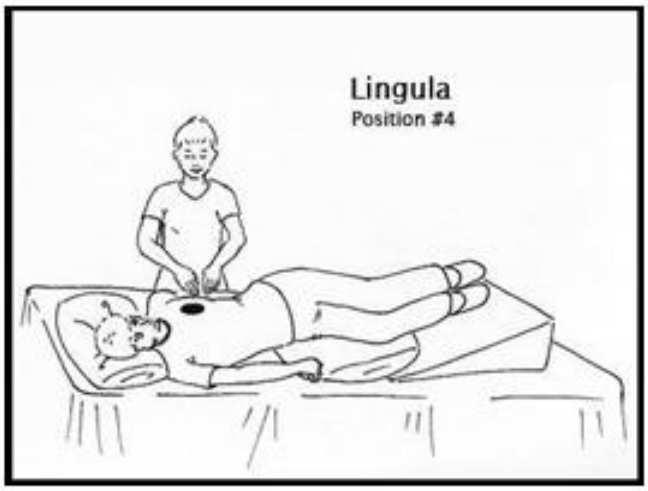


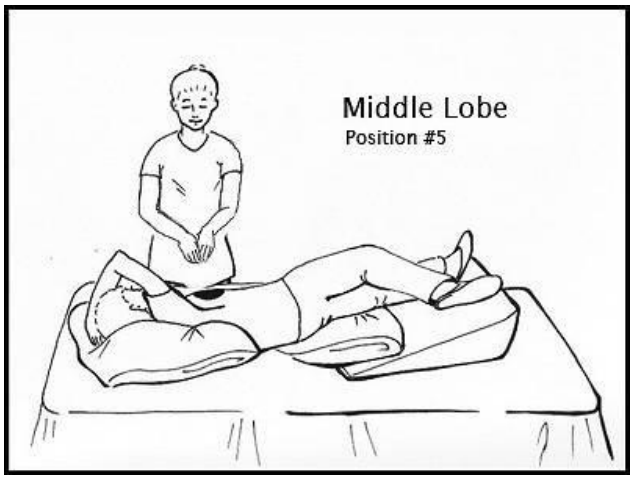
Upper Lobes
Posterior Segments
Position #2

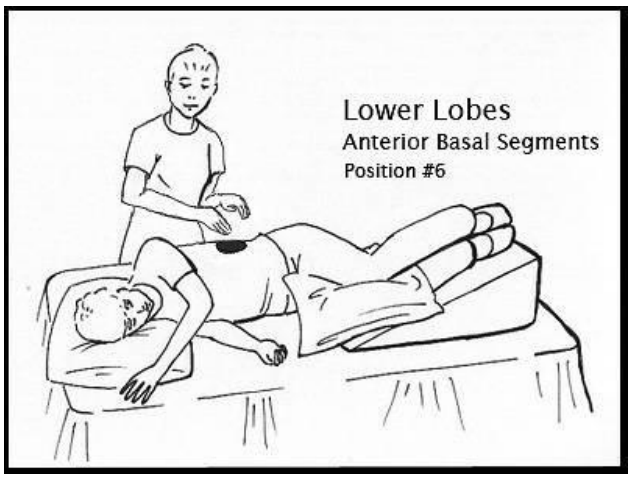


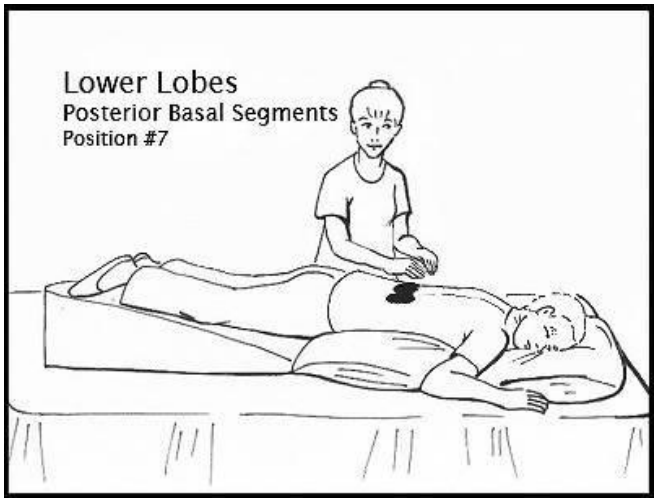
Upper Lobes
Anterior Segments
Position #3

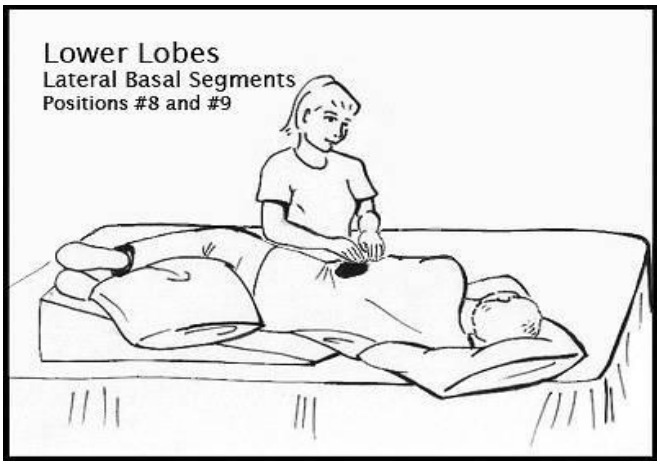


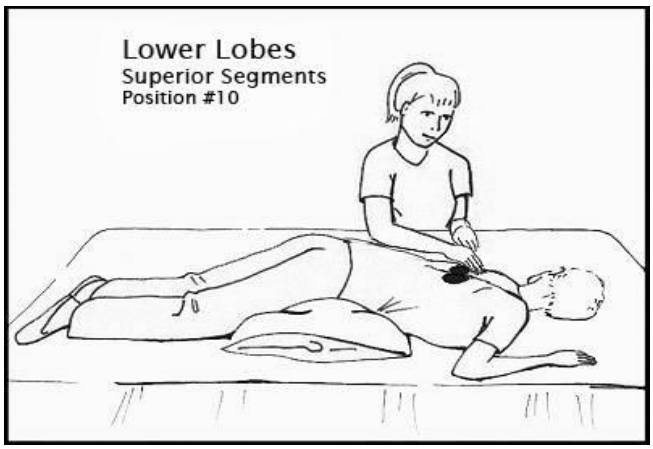

Lingula
Position #4

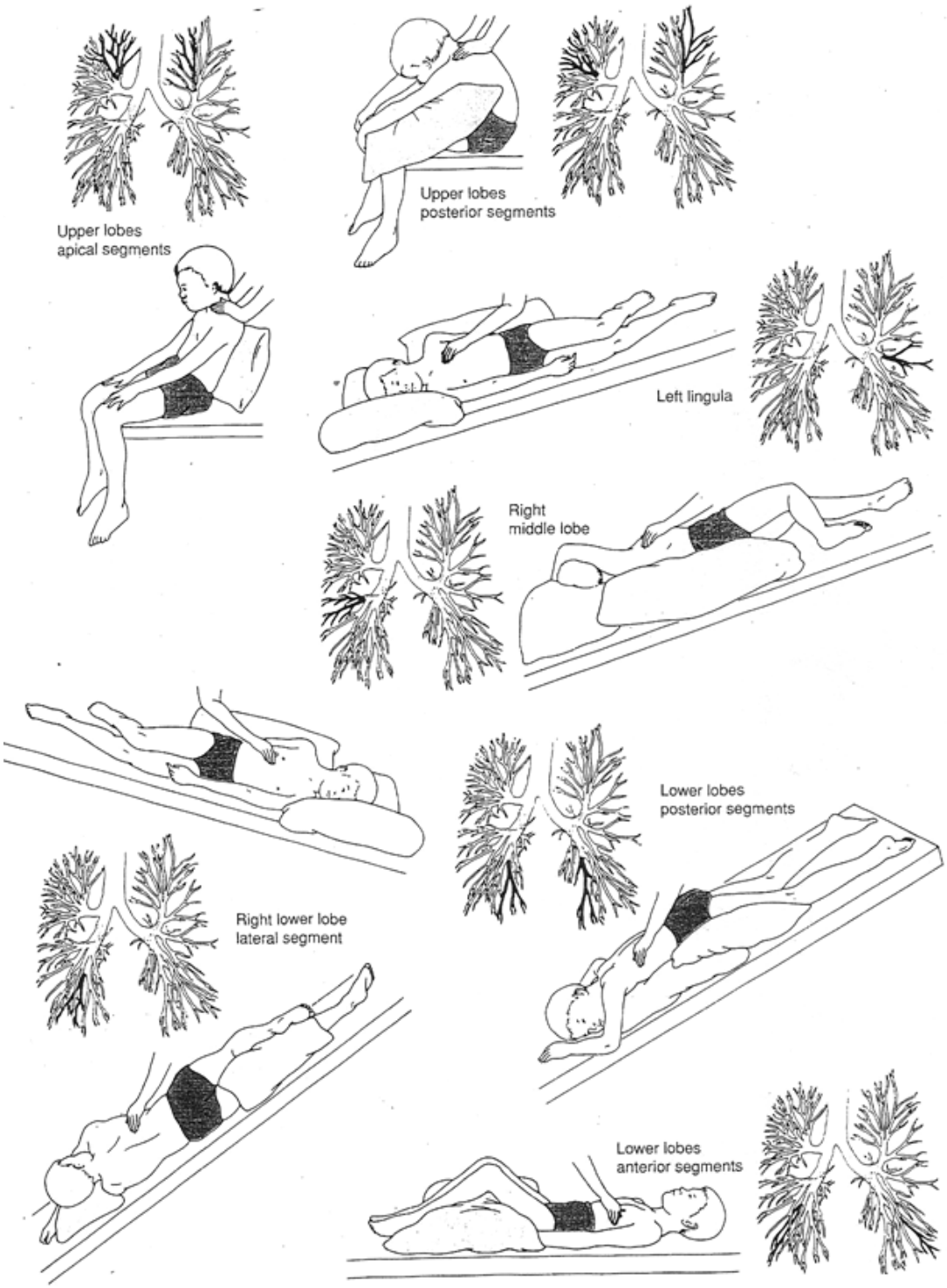

Middle Lobe
Position #5


Lower Lobes
Anterior Basal Segments
Position #6


Lower Lobes
Posterior Basal Segments
Position #7


Lower Lobes
Lateral Basal Segments
Positions #8 and #9


Lower Lobes
Superior Segments
Position #10


Upper lobes
apical segments
Upper lobes
posterior segments
Left lingula
Right
middle lobe
Lower lobes
posterior segments
Right lower lobe
lateral segment
Lower lobes
anterior segments

QUESTIONAIRE

SECTION – A

DEMOGRAPHIC VARIABLES:

SAMPLE NO:

DATE OF ADMISSION:

DIAGNOSIS:

1. Age of the child

a. 6 – 6.5 years ☐

b.6.6 – 7 years ☐

c. 7.1 – 7.5 years ☐

d. 7.6 – 8 years ☐

2. Sex of the child

a. Male ☐

b. Female ☐

3. Immunization status

a. Up to date ☐

b. Post dated ☐

c. Irregular ☐

d. Delayed due to illness ☐

4. Weight of the child

a. Below normal ☐

b. Normal ☐

c. Above normal ☐

5. Previous episode of respiratory infection

a. First episode ☐

b. 2 – 3 episodes ☐

c. 4 – 5 episodes ☐

d. More than 5 episodes ☐

6. Number of times Hospitalised

a. First time ☐

b. 2 – 3 times ☐

c. 4 – 5 times ☐

d. Above 5 times ☐

7. Number of days Hospitalised

a. Below 3 days ☐

b. 3 – 5 days ☐

c. 6 – 7 days ☐

d. Above 7 days ☐

8. Is there any indirect smoking atmosphere in house ?

a. Yes ☐

b. No ☐

9. Residing Place

a. Village ☐

b. Sub-urban ☐

c. City ☐

10. Monthly income

a. below Rs.5000 ☐

b. Rs.5100-7000 ☐

c. Above 7100 ☐

நேர்முக காணல் படிவம்

பகுதி - அ

புள்ளி விவர ஆய்வு :

மாதிரி எண் :

மருத்துவமனையில் அனுமதிக்கப்பட்ட நாள் :

நோயின் பெயர் :

1) குழந்தையின் வயது

அ) 6 - 6.5 வயது ☐

ஆ) 6.6 - 7 வயது ☐

இ) 7.1 - 7.5 வயது ☐

ஈ) 7.6 - 8 வயது ☐

2) குழந்தையின் பாலினம்

அ) ஆண் ☐

ஆ) பெண் ☐

3) தடுப்பூசி கொடுத்த விவரம்

அ) குறிப்பிட்ட தேதியில் கொடுக்கப்பட்டது ☐

ஆ) குறிப்பிட்ட தேதிக்கு பிறகு ☐

இ) விட்டு விட்டு கொடுக்கப்பட்டது ☐

ஈ) நோயினால் தள்ளிப் போனது ☐

4) குழந்தையின் வயதிற்கு ஏற்ற எடை பற்றிய விவரம்

அ) குறைந்த எடை ☐

ஆ) சரியான எடை ☐

இ) அதிகமான எடை ☐

5) முந்தைய சுவாச சம்பந்தப்பட்ட நோயினால் பாதிக்கப்பட்ட விவரம்

அ) முதல் முறை ☐

ஆ) 2 - 3 முறைகள் ☐

இ) 4 - 5 முறைகள் ☐

ஈ) 5 முறைக்கு மேல் ☐

6) மருத்துவமனையில் அனுமதிக்கப்பட்ட விவரம்

அ) முதல் முறை ☐

ஆ) 2 - 3 முறைகள் ☐

இ) 4 - 5 முறைகள் ☐

ஈ) 5 முறைகள் மேல் ☐

7) நோய்வாய்ப்பட்டபோது மருத்துவமனையில் இருந்த நாட்கள்

அ) 3 நாட்களுக்கு குறைவான நாட்கள் ☐

ஆ) 3 - 5 நாட்கள் ☐

இ) 6 - 7 நாட்கள் ☐

ஈ) 7 நாட்களுக்கு மேல் ☐

8) வீட்டில் மறைமுகமான புகைபிடித்தலுக்கு குழந்தை உட்பட்டுள்ளதா?

அ) ஆம் ☐

ஆ) இல்லை ☐

9) வசிக்கும் இடம்

அ) கிராமம் ☐

ஆ) புறநகரம் ☐

இ) நகரம் ☐

10) குடும்பத்தின் மாத வருமானம்

அ) ரூ.5000 குறைவாக ☐

ஆ) ரூ.5100 - ரூ.7000 ☐

இ) ரூ.7100-க்கு மேல் ☐

SECTION – B

RESPIRATORY STATUS ASSESSMENT: 1.CLINICAL PARAMETERS

Clinical parameters	0	1	2	Day 1	Day 2
Chest movements	Symmetrical	Less Symmetrical	Unequal		
Work of breathing	Normal	Difficulty	Noisy		
Chest retraction	No retraction	Intermittent	Continuous		
Nasal flaring	Absent	Intermittent	Continuous		
Air entry	Bilateral	Unilateral	Nil		
Breath sounds	Normal Vesicular breath sounds	Wheeze	Crepts, Severe Wheeze		
Cough	No cough	Intermittent	Persistant		
Capillary refill	< 2 seconds	>3 seconds	> 4 seconds		
Sputum nature	No sputum	Thin mucoid	Thick purulent		
Use of accessory muscle	Nasal breathing	Mouth breathing	Sternuous muscle breathing		

SCORE:

0 - Normal

1 – 7 - Mild distress (35%)

8 – 14 - Moderate distress (36-70%)

15 – 20 – Severe distress (71-100%)

2. BIO-PHYSIOLOGICAL PARAMETERS

PARAMETERS	DAYS	MORNING		EVENING	
		Before intervention	After intervention	Before intervention	After intervention
HEART RATE	D1				
	D2				
RESPIRATORY RATE	D1				
	D2				
OXYGEN SATURATION	D1				
	D2				

BIO-PHYSIOLOGICAL PARAMETERS (BPM)

Heart rate

90 – 110 beats/minute - 0 (Normal)

Above 110 – 124 beats/minute - 1 (Tachycardia)

Above 124 beats/minute - 2 (Severe tachycardia)

Respiratory rate

24 – 30 breaths/minute	-	0 (Normal)
Above 30 – 44 breaths/minute	-	1 (Tachypnea)
Above 44 breaths/minute	-	2 (Severe tachypnea)

Oxygen Saturation ($Sa0_{2)}$

91 – 100%	-	0 (Normal)
85 – 90%	-	1 (Low $Sa0_2$)
Less than 85%	-	2 (very low $Sa0_2$)

Score

0	- Normal BPM
1 – 3	- Mild/Moderately altered BPM
4 – 6	- Severely altered BPM

Sample	Group	D1M RR BEFORE	D1M RR AFTER	D1E RR BEFORE	D1E RR AFTER	D2M RR BEFORE	D2M RR AFTER	D2E RR BEFORE	D2E RR AFTER
1	Experimental	40	40	38	38	36	36	32	28
2	Experimental	38	38	36	36	34	34	30	26
3	Experimental	42	42	40	40	38	38	34	28
4	Experimental	40	40	38	38	36	36	32	28
5	Experimental	34	34	32	32	32	32	28	24
6	Experimental	44	44	42	42	40	40	36	30
7	Experimental	40	40	38	38	36	36	32	28
8	Experimental	38	38	36	36	34	34	30	26
9	Experimental	36	36	34	34	32	32	28	24
10	Experimental	32	32	32	32	32	32	28	24
11	Experimental	40	40	38	38	36	36	32	28
12	Experimental	42	42	40	40	38	38	34	30
13	Experimental	44	44	42	42	40	40	36	30
14	Experimental	36	36	34	34	34	34	30	26
15	Experimental	38	38	36	36	34	34	30	26
16	Experimental	38	38	36	36	34	34	30	26
17	Experimental	40	40	38	38	36	36	32	28
18	Experimental	44	44	42	42	40	40	36	30
19	Experimental	34	34	32	32	32	32	28	24
20	Experimental	32	32	30	30	30	30	28	24
21	Experimental	40	40	38	38	36	36	32	28
22	Experimental	44	44	42	42	40	40	36	30
23	Experimental	42	42	40	40	38	38	34	30
24	Experimental	40	40	38	38	36	36	32	28
25	Experimental	36	36	34	34	34	34	30	26
26	Experimental	38	38	36	36	34	34	30	26
27	Experimental	40	40	38	38	36	36	32	28
28	Experimental	42	42	40	40	38	38	34	30
29	Experimental	44	44	42	42	40	40	36	30
30	Experimental	40	40	38	38	36	36	32	28

31	Control	44	40	44	40	40	40	40	40
32	Control	42	42	42	42	42	42	42	42
33	Control	40	44	40	40	44	44	44	40
34	Control	42	42	42	40	42	42	42	40
35	Control	44	42	44	42	42	42	42	42
36	Control	40	38	40	38	38	38	38	38
37	Control	42	40	42	40	40	40	40	40
38	Control	44	42	44	42	42	42	42	42
39	Control	40	40	40	40	40	40	40	40
40	Control	42	40	42	40	40	40	40	40
41	Control	42	40	42	40	40	40	40	40
42	Control	40	38	40	38	38	38	38	38
43	Control	44	42	44	42	42	42	42	42
44	Control	42	40	42	40	40	40	40	40
45	Control	42	40	42	40	40	40	40	40
46	Control	44	42	44	42	42	42	42	42
47	Control	44	42	44	42	42	42	42	42
48	Control	42	40	42	40	40	40	40	40
49	Control	42	40	42	40	40	40	40	40
50	Control	42	38	42	40	38	38	38	40
51	Control	40	42	40	38	42	42	42	38
52	Control	44	42	44	42	42	42	42	42
53	Control	44	40	44	42	40	40	40	42
54	Control	42	40	42	40	40	40	40	40
55	Control	40	38	40	40	38	38	38	40
56	Control	42	40	42	40	40	40	40	40
57	Control	44	42	44	42	42	42	42	42
58	Control	42	40	42	40	40	40	40	40
59	Control	42	40	42	38	40	40	40	38
60	Control	40	38	40	44	38	38	38	44

0 - Normal
1 - Tachypnea
2 - SevereTachypnea

Respiratory rate
24-30breaths/min.
Above 30-44breaths/min
Above 44breaths/min

Sample	Group	D1M HR BEFORE	D1M HR AFTER	D1E HR BEFORE	D1E HR AFTER	D2M HR BEFORE	D2M HR AFTER	D2E HR BEFORE
1	Experimental	96	96	96	96	98	98	96
2	Experimental	100	100	100	100	102	102	100
3	Experimental	102	102	102	102	110	110	102
4	Experimental	110	110	110	110	98	98	110
5	Experimental	98	98	98	98	96	96	98
6	Experimental	96	96	96	96	98	96	96
7	Experimental	108	108	108	108	108	100	108
8	Experimental	104	104	104	104	102	102	104
9	Experimental	100	100	100	100	96	110	100
10	Experimental	98	98	98	98	100	98	98
11	Experimental	98	98	98	98	102	96	98
12	Experimental	96	96	96	96	110	108	96
13	Experimental	102	102	102	102	98	104	102
14	Experimental	102	102	102	102	96	100	102
15	Experimental	100	100	100	100	108	98	100
16	Experimental	110	110	110	110	104	98	110
17	Experimental	100	100	100	100	100	96	100
18	Experimental	108	108	108	108	98	102	108
19	Experimental	98	98	106	98	98	102	106
20	Experimental	98	98	98	98	96	100	98
21	Experimental	96	96	102	96	102	110	102
22	Experimental	100	100	110	100	102	100	110
23	Experimental	108	108	98	108	100	108	98
24	Experimental	110	110	96	110	110	104	96
25	Experimental	110	110	98	110	100	100	98
26	Experimental	110	110	96	110	108	98	98
27	Experimental	108	108	100	108	98	98	96
28	Experimental	100	100	102	100	98	96	100
29	Experimental	98	98	110	98	96	102	108
30	Experimental	98	98	98	98	100	102	110
31	Control	96	100	96	100	108	100	110
32	Control	100	96	108	102	110	110	98
33	Control	102	100	104	96	110	100	98
34	Control	110	102	100	100	104	108	96
35	Control	98	110	98	102	110	98	100
36	Control	96	98	98	110	100	98	108
37	Control	108	96	96	98	96	96	110

38	Control	104	108	102	96	100	100	110
39	Control	100	104	102	108	102	108	100
40	Control	98	100	100	104	110	110	102
41	Control	98	98	110	100	98	110	110
42	Control	96	98	100	98	96	110	98
43	Control	102	96	108	98	108	108	96
44	Control	102	102	100	96	104	100	108
45	Control	100	102	98	102	100	98	104
46	Control	110	100	98	102	98	98	100
47	Control	100	110	98	100	98	98	98
48	Control	108	100	96	110	96	96	98
49	Control	98	108	110	100	102	108	96
50	Control	98	110	98	108	102	104	102
51	Control	96	98	96	100	100	100	102
52	Control	100	96	108	98	110	98	100
53	Control	108	108	104	98	100	98	110
54	Control	110	104	100	96	108	96	100
55	Control	110	100	98	108	98	100	108
56	Control	110	98	98	104	98	98	98
57	Control	108	98	108	100	96	98	98
58	Control	100	108	104	98	100	98	96
59	Control	98	104	100	98	108	96	100
60	Control	98	100	102	96	110	108	108

HEART RATE

90 - 110 Beats/min	**0 - Normal**
Above 110 -124 Beats/min	**1 - Tachycardia**
Above 124 Beats/min	**2 - Severe Tachycardia**

D2E HR AFTER
98
102
110
98
96
98
108
98
102
110
98
96
98
108
96
100
102
110
98
96
108
104
100
98
98
96
102
102
100
110
100
108
104
100
98
98
96

102
102
100
110
100
108
110
98
96
108
104
100
98
98
96
108
104
100
98
98
100
102
104

Sample	Group	D1M OXY SAT BEFORE	D1M OXY SAT AFTER	D1E OXY SAT BEFORE	D1E OXY SAT AFTER	D2M OXY SAT BEFORE	D2M OXY SAT AFTER	D2E OXY SAT BEFORE	D2E OXY SAT AFTER
1	Experimental	85	88	87	88	90	92	100	97
2	Experimental	88	90	88	86	92	90	98	96
3	Experimental	87	86	90	85	91	93	99	99
4	Experimental	90	88	86	87	95	94	96	100
5	Experimental	88	86	88	88	91	94	97	99
6	Experimental	85	85	86	90	92	93	99	96
7	Experimental	86	87	85	89	93	92	100	100
8	Experimental	90	88	87	88	94	90	100	99
9	Experimental	88	90	88	90	94	94	97	97
10	Experimental	88	89	90	86	93	93	96	98
11	Experimental	90	88	89	88	92	92	99	99
12	Experimental	86	87	88	86	90	90	96	98
13	Experimental	85	90	87	85	94	94	97	99
14	Experimental	88	90	88	87	93	93	98	96
15	Experimental	90	89	90	88	92	92	98	97
16	Experimental	86	88	89	86	90	90	99	99
17	Experimental	88	87	88	90	92	93	100	100
18	Experimental	86	90	87	89	93	94	100	100
19	Experimental	85	89	90	88	95	94	98	97
20	Experimental	87	88	86	87	94	93	97	96
21	Experimental	88	87	88	88	90	92	96	99
22	Experimental	87	88	86	87	92	90	99	96
23	Experimental	88	90	85	90	90	94	100	97
24	Experimental	90	89	87	89	93	93	99	100
25	Experimental	88	88	88	88	94	92	96	98
26	Experimental	90	87	90	87	92	94	100	97
27	Experimental	89	88	89	88	95	93	99	96
28	Experimental	88	89	88	86	93	92	97	99
29	Experimental	87	88	87	85	90	90	98	100
30	Experimental	88	85	88	87	90	94	99	99

31	Control	88	87	87	86	87	88	87	89
32	Control	87	87	88	86	87	87	88	90
33	Control	86	86	89	87	86	86	89	87
34	Control	85	85	90	88	85	85	90	87
35	Control	87	87	87	89	87	87	87	89
36	Control	90	90	87	90	90	90	87	90
37	Control	87	87	89	87	90	89	89	87
38	Control	86	88	86	87	87	87	86	87
39	Control	88	89	90	89	88	88	90	89
40	Control	87	90	86	86	87	89	86	90
41	Control	88	87	87	90	88	90	87	87
42	Control	89	87	87	86	89	87	87	87
43	Control	90	89	88	87	90	87	88	88
44	Control	87	86	87	87	87	89	87	87
45	Control	87	90	89	88	87	86	89	89
46	Control	89	86	86	87	89	90	86	86
47	Control	86	87	88	89	86	86	88	88
48	Control	90	87	89	86	90	87	89	89
49	Control	86	88	90	88	86	87	90	90
50	Control	87	87	89	89	87	88	89	89
51	Control	87	89	88	90	87	87	88	88
52	Control	88	86	87	89	88	89	87	87
53	Control	87	88	89	88	87	86	89	89
54	Control	89	89	87	87	89	88	87	86
55	Control	86	90	87	89	86	89	87	88
56	Control	88	89	89	87	88	90	89	89
57	Control	89	88	87	87	89	89	86	90
58	Control	90	87	89	89	90	88	88	89
59	Control	89	87	87	87	89	87	89	88
60	Control	88	89	89	89	88	89	88	89

OXYGEN SATURATION (SaO2)

91 -100% - 0 (Normal SaO2)

85 - 90% - 1 (Low SaO2)

Less than 85% - 2 (Very Low SaO2)